Security Guidelines for Businesses

SC 19022-PER

<overworked during the 28th SC (Italy)   
U:\Zertdat\ZERTDaten\ZERT\Arbeitskreise\CFPA SC\Documents, in process\19022 Security Guidelines Businesses.docx

**Content**

[1 Introduction 4](#_Toc22289152)

[2 General 5](#_Toc22289153)

[2.1 Risks and Challenges 5](#_Toc22289154)

[2.2 Implementation of Protection Measures 7](#_Toc22289155)

[2.3 Risks 7](#_Toc22289156)

[2.3.1 Burglary 10](#_Toc22289157)

[2.3.2 Robbery 10](#_Toc22289158)

[2.3.3 Vandalism 11](#_Toc22289159)

[2.3.4 Fire and Fire Smoke 11](#_Toc22289160)

[2.3.5 Natural Hazards 11](#_Toc22289161)

[2.3.6 Other Hazards 11](#_Toc22289162)

[3 Walls, Floors, Ceilings and Roofs 12](#_Toc22289163)

[3.1 General 12](#_Toc22289164)

[3.2 Resistance of Walls, Floors, Ceilings and Roofs 12](#_Toc22289165)

[4 Doors 12](#_Toc22289166)

[4.1 General 12](#_Toc22289167)

[4.2 Weak Points of Doors 13](#_Toc22289168)

[4.3 Door Leafs 14](#_Toc22289169)

[4.3.1 Honeycomb-Core and Tubular Particle Board Doors 14](#_Toc22289170)

[4.3.2 Panelled Door Leafs 14](#_Toc22289171)

[4.3.3 Double Door Leafs (Solid Wood) 15](#_Toc22289172)

[4.3.4 Metal Frame Door Leafs 15](#_Toc22289173)

[4.3.5 Synthetic Door Leafs 15](#_Toc22289174)

[4.3.6 Steel Door Leafs 15](#_Toc22289175)

[4.3.7 All-Glass Door Leafs 15](#_Toc22289176)

[4.3.8 Door Frames 16](#_Toc22289177)

[4.4 Door Security Components 16](#_Toc22289178)

[4.4.1 Door Hinges 16](#_Toc22289179)

[4.4.2 Securing the Hinge Sides 16](#_Toc22289180)

[4.4.3 Striker Plates 16](#_Toc22289181)

[4.5 Locks 17](#_Toc22289182)

[4.5.1 Mortise Locks 17](#_Toc22289183)

[4.5.2 Cylinder Locks (Cylinder Mortise Locks) 17](#_Toc22289184)

[4.5.3 Slide Bolt Locks (Mortise Locks for Tubular Frame Doors) 18](#_Toc22289185)

[4.5.4 Swing Bolt Locks (Mortise Locks for Tubular Frame Doors) 18](#_Toc22289186)

[4.5.5 Locking Cylinders 18](#_Toc22289187)

[4.5.5.1 Mechanical Locking Cylinders 18](#_Toc22289188)

[4.5.5.2 Electronic Locking Cylinders 19](#_Toc22289189)

[4.5.6 Chubb Locks 19](#_Toc22289190)

[4.5.7 Locking Systems 20](#_Toc22289191)

[4.5.8 Warded Locks 20](#_Toc22289192)

[4.5.9 Cylinder Protectors, Key-Hole Locks 20](#_Toc22289193)

[4.5.10 Additional Protection 20](#_Toc22289194)

[4.5.11 Multipoint Locks 21](#_Toc22289195)

[4.5.12 All-Glass Door Locks 21](#_Toc22289196)

[4.5.13 Switch Locks 21](#_Toc22289197)

[4.5.14 Door Plates 21](#_Toc22289198)

[4.6 Burglar-Resistant Doors 22](#_Toc22289199)

[5 Gates 23](#_Toc22289200)

[5.1 Sliding gates 23](#_Toc22289201)

[5.2 Rolling Gates 23](#_Toc22289202)

[5.3 Multi-Panel Gates, Latch Gates 23](#_Toc22289203)

[6 Windows 24](#_Toc22289204)

[6.1 General 24](#_Toc22289205)

[6.2 Weak Points of Windows 24](#_Toc22289206)

[6.3 Window Friezes 25](#_Toc22289207)

[6.4 Security Components for Windows 25](#_Toc22289208)

[6.4.1 Fittings 25](#_Toc22289209)

[6.4.2 Additional Protection Devices 25](#_Toc22289210)

[6.5 Glazings 26](#_Toc22289211)

[6.5.1 Non-Resistant Glazings 26](#_Toc22289212)

[6.5.2 Burglar-Resistant Glazings 26](#_Toc22289213)

[6.5.3 Bullet-Resistant Glazings 27](#_Toc22289214)

[6.5.4 Alarm Glasses 27](#_Toc22289215)

[6.5.5 Window Joints 27](#_Toc22289216)

[6.6 Burglar-Resistant Windows 27](#_Toc22289217)

[6.7 Cellar Windows and Skylights 28](#_Toc22289218)

[6.7.1 Cellar Windows and Light Shaft Safety 28](#_Toc22289219)

[6.7.2 Skylights 29](#_Toc22289220)

[6.7.3 Dome Lights 29](#_Toc22289221)

[6.8 Panels/Screens 29](#_Toc22289222)

[6.8.1 Rodent-Proof Screens 29](#_Toc22289223)

[6.8.2 Interior Panels 29](#_Toc22289224)

[6.8.3 Precast Masonry and Concrete Parts 29](#_Toc22289225)

[6.8.4 Grills and Rolling Shutters 29](#_Toc22289226)

[6.8.5 Fixed Grills 30](#_Toc22289227)

[6.8.6 Rolling Shutters 30](#_Toc22289228)

[6.8.7 Sliding Gates 31](#_Toc22289229)

[6.8.8 Burglar-Resistant Rolling Shutters 31](#_Toc22289230)

[7 Safes 31](#_Toc22289231)

[7.1 General 31](#_Toc22289232)

[7.2 Secure Storage Unit Monitoring 32](#_Toc22289233)

[7.3 Tips for Choosing the Right Safe 33](#_Toc22289234)

[7.4 Classically Styled Secure Storage Units 33](#_Toc22289235)

[8 Intrusion and Hold-Up Alarm Systems (IAS, HUAS) 33](#_Toc22289236)

[8.1 General 33](#_Toc22289237)

[8.2 Grade 1 and Grade 2 Intrusion Alarm Systems 33](#_Toc22289238)

[8.3 Grade 3 Intrusion Alarm Systems 33](#_Toc22289239)

[8.4 Grande 4 Intrusion Alarm Systems 34](#_Toc22289240)

[8.5 Installation 34](#_Toc22289241)

[8.6 Setting/Unsetting 34](#_Toc22289242)

[9 Robbery 34](#_Toc22289243)

[9.1 Risks 35](#_Toc22289244)

[9.2 Protective Measures 35](#_Toc22289245)

[9.2.1 Organisational Measures 35](#_Toc22289246)

[9.2.2 Construction-Based/Mechanical Measures 35](#_Toc22289247)

[9.2.3 Electronic Measures 35](#_Toc22289248)

[9.2.4 Robbery in Transit 36](#_Toc22289249)

[10 Security Classes, Definitions and Examples 36](#_Toc22289250)

[10.1 Introduction 36](#_Toc22289251)

[11 Requirements 37](#_Toc22289252)

[11.1 Security Class SC 1 38](#_Toc22289253)

[11.2 Security Class SC 2 43](#_Toc22289254)

[11.3 Security Class SC 3 48](#_Toc22289255)

[11.4 Security Class SC 4 53](#_Toc22289256)

[11.5 Security Class SC 5 53](#_Toc22289257)

[11.6 Security Class SC 6 54](#_Toc22289258)

[Annex A References 60](#_Toc22289259)

[11.7 References 60](#_Toc22289260)

<26th meeting: it was decided to not create a chapter on cyber security>

# Introduction

Burglary is a risk for all kinds of businesses, starting with small shops and offices up to financial companies and jewellers, and therefore concernes everybody.

Burglary can only be combated by taking the adequate preventive measures. Most often, this means the use of mechanical or electronic protective devices. For objects in general view, adequate protective measures can be a precondition for burglary and vandalism insurance.

For this reason, security guidelines for protection against burglary were established. They give the user recommendations as to which security requirements should be applied to a company. At the same time, questions of the respective risk and the profitability of such measures are also taken into consideration. As a result, 6 non-binding risk classes for business premises (SC 1 – SC 6 (SC: Security Class)) are described in Appendix n.

It is recommended that a high-risk business is protected and monitored using both mechanical and electronic protective devices and organisational <to be checked, if given in the text; Paulus: I would not explain to much on organisational measures – this is a security guideline; it is sufficient just to point out that organisation is relevant (my opinion)>measures. Of importance here is that the measures complement one another and form a security chain that allows the policyholder to insure his valuables without any further support. The security guidelines take up this concept and provide recomendationsd as to how this type of security chain can be established in the non-binding risk classes. The user should therefore always assess individual measures as to whether they strengthen or weaken the security chain.

The measures in the security guidelines can only constitute non-obligatory suggestions. In individual cases, e.g. with objects in general view (high value, high-risk location, etc.), additional measures may be necessary in order to achieve effective protection against the risk of burglary or vandalism.

It is recommended that only approved or certified products are used, and a professional installation company engaged, for these security measures to be fully effective. These products are tested and certified by an accredited test and certification company.

If certified and approved burglar-resistant components are employed (e.g. burglar-resistant doors, professionally installed retrofit installations on windows, etc.), all parties can be assured that the products have seen intensive testing and that they have excellent protection against burglary. For example, a burglar-resistant door with a certificate has to force the criminal to spend a minimum amount of time on entry, even when equipped with tools. Burglary protection products are regularly divided into classes. Studies by the police have confirmed that many attempted burglaries fail in the face of high-quality security systems, because the burglar does not have the necessary time to carry out the burglary.

These Security Guidelines can be used as a guide in planning for risk management. Experience has shown that the use of approved burglar-resistant elements during installation of the object provides the best protection. Retrofitting does not often achieve the same degree of protection. The user should also pay particular attention to which element of the security chain is the weakest.

**Important note: During planning, installation and implementation of the security measures, the local regulations for escape and rescue routes must be observed.**

Confer also to CFPA Guidelines Emergency Exit Doors in non Residential Premises 06/S.

This applies also if fire-resistant closures, e.g. fire doors or fire flaps, are used simultaneously for burglary protection. Modifications to these products are only permitted following national law or respective regulations.

**It is highly recommended to make use of professional Installation companies. As far as possible these companies should held a certification against their profession.**

<this hint was formulated according to our discussion in Bologna>

National regulations – as always – are to be used, as far as given.

# General

## Risks and Challenges

In order to meet their special responsibility, management needs to implement a systematic protection scheme that clearly defines and documents the necessary structural protection measures as well as the organisational safeguards. Such a protection scheme would typically include a specific risk assessment from which it derives protection concepts against identified risks.

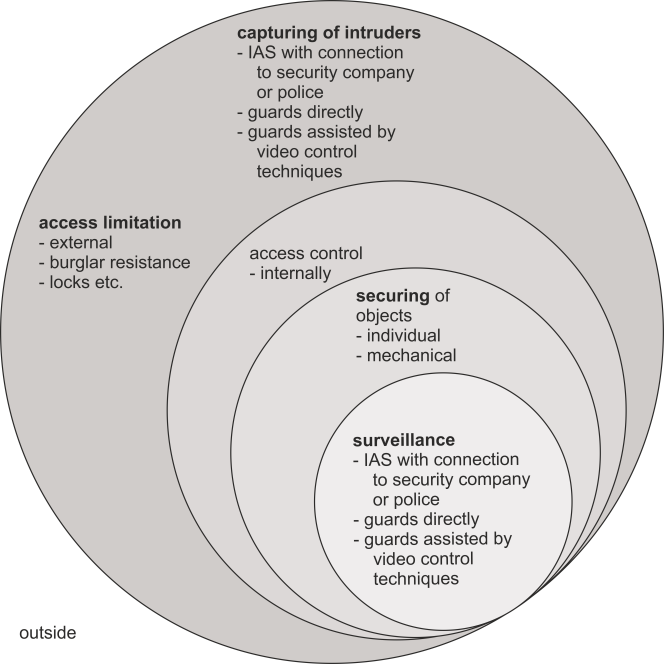


Figure 2‑1 Defence in principle

Organisational measures in the context of the protection concept such as access restrictions, bag searches and adequate surveillance “top off” the protection concept to be developed against burglary and theft, by also preventing any pick pocketing or acts of vandalism during opening hours. However, visitors’ and costumers legitimate interest in inconspicuous and discreet checks must always be taken into consideration.

Electronic and optical systems should complement mechanical safeguards to monitor the areas structurally protected, and to activate an alarm in case of a crime (burglary or lock-in). The further outside electronic safeguards are deployed (e.g. as perimeter protection with, say, alarm loops in the outer glazing), the faster an alarm is triggered, causing immediate intervention by security guards if connected to the police or security services (cf. Figure 2‑1). In addition a mere perimeter safeguards, “trap protection monitoring” should also be incorporated to detect locked-in burglars as early as possible.

These Security Guidelines provide practical recommendations to protect commercial and busines premises against the risks of

* burglary
* theft by visitors or employees
* robbery
* vandalism.

Experience shows that approved physical security elements (as e.g. windows and doors) installed in the course of the erection of a building provide the most effective protection. Often, mechanical upgrades do not provide the same level of protection, though they clearly enhance security. In this context, planners, users and security officers need to focus their attention on the weakest elements of the security chain and, if required, upgrade them.

The general recommendation is to protect and/or monitor an object at risk with both mechanical and electronic safeguards. Manned security and surveillance and the overall organisation of different protection measures are important components of an optimum protection concept.

The most important prerequisite for the different safeguards is to complement one another in a useful way and constitute a harmonised security chain that makes it possible to insure the premesis. The Security Guidelines take up these principles and provide recommendations on how to install such a security chain. Hence, users should always review individual safeguards and determine whether they weaken or strengthen the security chain.

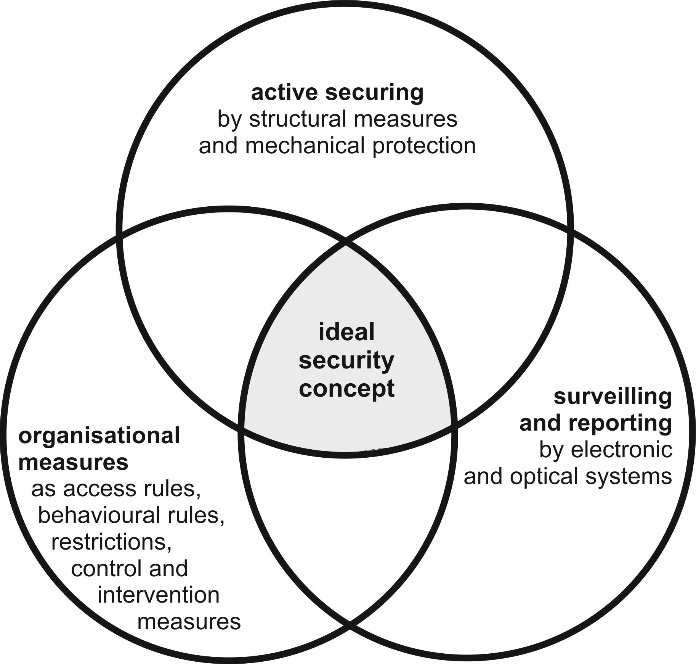


Figure 2‑2 Active protection

The top priority of a risk assessment is personal safety. Protection of the building is secondary to personal safety which, in case of a fire, might have adverse effects on the building if priority is given to open escape routes. However, the best possible coordination of personal safety and asset protection measures involving the police and fire brigade ensures a high level of protection for property.

Hence, the optimum protection concept against burglary/theft takes into account the structural measures that provide optimum protection as early as the design or planning stage for the premesis(see Figure 2‑2).

Mechanical safeguards such as burglary resistant windows and doors play an essential part. Good mechanical safeguards feature robust burglar resistance – the higher the resistance, the harder it becomes for the burglar to overcome these safeguards (in terms of time, tools, expertise) – which increases the risk for the perpetrator to be discovered and caught.

When coordinating mechanical and electronic safeguards, the most important aspect is adequate burglar resistance of the mechanical safeguards. As the perpetrator would need more time to overcome the safeguards, it becomes more likely for security guards who have been alerted to intervene in time. It also helps to prevent successful “smash and grab” break-ins.

The objective of these Security Guidelines is therefore to make insurers, managers, installers/maintenance persons and security officers, planners and the police aware of the various options of security technology with a view to burglary/theft. They provide non-binding recommendations to parties involved for developing an effective protection concept (structural/organisational/electronic) against the risks outlined here.

These Guidelines do not cover measures for protection against any other risks which include e.g. fire, natural hazards, water damage or development of contingency plans. The protection of data centres, IT facilities etc. is not covered by these Guidelines. For the protection several aspects have to be considered: E.g. physical loss of equipment (these guidelines can be applied), loss of data, modification or theft of data (cf. Guidelines for Cyber Security of Small and Medium Enterprises, No 11/S).

The given Security Guidelines explicitly take into consideration that every building has different structural and organisational properties.

The scope of protection therefore always needs to be tailored to the individual organisation, the respective value of the goods.

A classification of the premesis in terms of the required scope of protection can only be made to a limited extent (taking the security classes into acount cf. 11 to 11.6).

* In general, every facility may have different occupancies and premises at risk. Therefore, it might be useful to establish zones of different protection levels. These zones can be enclosed buildings, parts of buildings or rooms.

## Implementation of Protection Measures

When implementing protection measures, different intentions, skills and motivations of perpetrators and their expected approaches as well as the level of surveillance at different times need to be taken into consideration.

The security measures described apply to walls, floors and ceilings surrounding insured premises, and for corresponding openings such as doors, gates or windows. Openings generally require a mechanical protective device for burglary if they are less than 4 m above the ground or can be reached with existing installations from the outside, e.g. via annexes, canopy roofs, balconies, fire ladders, exterior gratings, etc.

Used building hardware, as doors, windows and other building elements and electronic measures have to be tested and certified according to European standards or national rules and regulations.

Albeit a 100 % security is not realistic, where certified and approved burglar-resistant elements are installed (e.g. burglar-resistant doors, security upgrades installed by experts on windows), all parties involved can be certain that these products proved during intensive tests that they are well suited as protection against burglaries. For instance, a certified burglar-resistant door needs to withstand an attack with tools typically used for a break-in for a defined minimum time. In general, the resistance level of a safeguard – resistance that a safeguard poses to an attacker – needs to be adequate. The higher the resistance level, the longer a perpetrator needs to enter a building or steal an object – the greater the chances that intervention forces, e.g. the police, will succeed in preventing the crime, catching the perpetrator in the act or prompt him to abort his project altogether.

In general, products for burglary and theft protection are divided into different classes. Investigations by the police show that many attempts at a burglary fail because of sophisticated security technology. The perpetrator needs to try harder the more sophisticated the protection; he loses time to overcome the safeguards which may prevent him from completing the theft.

*Important note: When planning, installing and operating the protection measures, the relevant legal provisions and requirements for escape and evacuation routes must be complied with. More detailed provisions are contained in the respective regional building codes. Moreover, requirements for fire* protection and protection from damage caused by water need to be taken into account.

## Risks

Although the level of threat differs , there are nevertheless basic risks to which almost all businesses are exposed. The level of exposure of a business is determined by a number of factors such as location, size, type and amount of goods and activities (in particular material values, damage due to business interuption times), etc. Further environmental aspects and human behaviour may lead to risks to be covered.

The individual protection concept generally represents an analysis of possible attack and loss scenarios (taking into account potential damage) aimed at achieving a defined protection level. This starts with an individual risk assessment. In this context, it is important to distinguish protection against malicious attacks (security) and protection from human or technical error (safety).

All protection concepts have a structural approach in common:

First step: Risk Assessment

* Defining the object to be protected and protection goals
* Assessing the likelihood of a loss and potential scope of damage
* Analysing the threats/damage scenarios

Second step: Business impact analysis

* Evaluating the possible damage

Third step: Control and mitigation

* Developing measures to reduce the likelihood /scope of a loss
* Planning measures and providing means to prevent and mitigate the loss if the risk materialises including business continuity and loss prevention plans.
* Analysing degree of risk that can be tolerated (even a sophisticated protection concept is not able to completely eliminate the residual risk).

Above all it is important to consider that the security arrangements may need to be modified quickly if personnel with direct responsibility “on the ground” recognise a developing problem requiring a swift and practical solution, compatible with the overall strategy.

One of the main problems in practical and operational risk management is a realistic assessment of risks, which is often based on subjective assumptions, and the identification of useful early warning indicators to monitor risk potential.

The risk assessment includes the determination of probability of occurrence and the possible scope of damage. It is based on a structured approach that classifies the risk and provides insight into the factors that have a positive or negative influence on the risk. The greater the probability and scope of damage, the more the project is at risk and the more the need for it to be radically rescheduled. Different methods can be used for the risk assessment.

Benefits of a comprehensive risk management: potential problems and exposures, can be identified at an early stage.

Pitfalls of risk management: despite good research, risks can only be estimated. Such estimates always imply a certain degree of uncertainty.

The risks should be assessed taking into consideration the different sectors of a business.

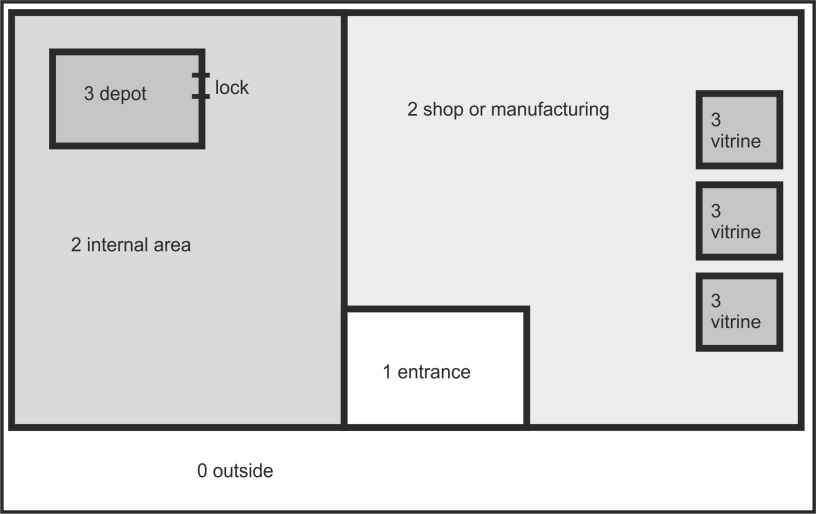


Figure 2‑3 Example of sectors, schematic illustration

In Figure 2‑3 one possibility of how to devide a risk into different sectors is shown. Each sector needs to be secured indivudually. The number and typology of sectors may differ for each business.

0 = outside

1 = entrance (public area)

2 = shop or manufacturing

2 = internal area, offices

3 = safe, storage rooms, vitrines

At the beginning of a risk analysis, the protection matrix below provides some first guidance. It illustrates the level and kind of protection theat might be required in different sectors (tick the boxes that are relevant in the individual situation).

Sector relevant risks of the individual example   
vandalism

1. vandalism, burglary
2. vandalism, burglary, hold up, theft
3. burglary
4. burglary, hold up

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sector | Main Risk | Structural Mechanical | Intuder Alarm / Hold Up Alarm System | Video Surveillance System |
| 0 | vandalism |  |  |  |
| 1 | vandalism, burglary |  |  |  |
| 2 | vandalism, burglary, hold up, theft |  |  |  |
| 3 | burglary |  |  |  |
| 4 | burglary,  hold-up |  |  |  |

Table 2‑1 Example of a protection matrix

There is a difference between buildings which are exclusively used for one single business and those which are part of other organisations or whose premises can also be used entirely or partially by other organisations. While some businesses can be locked after opening hours, in buildings with shared occupancies the entering outside opening hours for third parties is possible. If so, the business rooms need to be partitioned from other – occupied – rooms. Any partition needs to accommodate mechanical safeguards, electronic surveillance and organisational protection measures. Such a shared occupancy may result from e.g. an integrated restaurant that is operated during and beyond opening hours.

In general, such risks may be posed by different groups of users such as employees, service providers or third parties without a traceable connection to the business (e.g. visitors).

All the risks described below may result in immediate damage, for instance, stealing and destroying goods and property. Moreover, almost every incident of immediate damage is expected to lead to indirect repercussions. For instance, if important goods are stolen, the business has to expect a decline in sales or worse, a loss of costumors and the business reputation.

### Burglary

Burglary crimes include burglary and theft and crimes such as

* Theft of goods or vluable assets during the opening hours of a business
* "Smash and grab" theft
* Theft during shipment

All these crimes may also be committed by third parties who have no connection with the business. At the same time, however,

* theft by business employees
* theft by contractors’ employees

also need to be taken into account when formulating the protection concept.

Burglary and theft as a particularly severe kind of theft is one of the most obvious risks to which goods are exposed.

The primary target of a burglary/theft is to steal goods and valuable assents. Burglaries may also be aimed at other valuables such as admission money or change deposited in ticket booths or safety containers, IT equipment, knowledge/information and office equipment.

Theft by and/or following "sneak in" and/or “lock in" are special types of theft and are dealt with in the same way as burglaries. In these cases, the perpetrator hides in the business or utility rooms which give him fairly easy access to goods and valuable assets, making it possible for him to complete the crime after opening hours.

Crime preparations through e.g. manipulation or sabotage of security equipment in preparation for a subsequent attack also need to be taken into account for the protection concept. This implies attempted burglary by a perpetrator who opens or manipulates windows or doors during opening hours so that he can use them later, either for access or to escape.

The design of escape and evacuation routes can have a considerable impact on the risk of burglary.

### Robbery

Robbery involving hold-up is a significant risk for businesss. In a hold-up, the perpetrator threatens or exercises physical violence to achieve his goals. Threatening to use force helps the perpetrator to exert pressure to seize e.g. goods or cash.

Robbery crime includes the following acts by perpetrators:

* Robbery hold-ups during opening hours aimed at business employees or visitors
* Intercepting business employees when entering or leaving business premises before or after opening hours
* Sneaking into premises during opening hours of the business with the aim of a subsequent hold-up
* Breaking-in after opening hours with the aim of a subsequent robbery hold-up.

The risk of robbery hold-ups is particularly significant as it is not only directed at assets but it also, in particular, poses a risk to persons.

### Vandalism

Vandalism in the broadest sense refers to deliberate, illegal damage or destruction of a third party’s property; it is common in different forms. Vandalism directed at goods implies e.g. breaking or spraying things with the aim of partially or completely destroying them.

Vandalism is an offence to which there can be different underlying motivations:

* Malice
* Enjoying destruction
* Mental disorientation, emotional disorders
* Aggravation, bitterness, frustration
* Aversions against certain brands or business concepts
* Destroying evidence, covering-up other crimes.

### Fire and Fire Smoke

Fires (fire as well as smoke and heat) may have disastrous effects on people, goods, buildings and fitments.

The following factors pose the risk of fire development and spread:

* Arson
* Negligence (e.g. by unsuitable location for heaters)
* Defective (or obsolete) electrical systems and equipment
* Activities prone to cause fire (welding, soldering, hot-glueing, abrasive cutting etc.)
* Radiant heat by lights
* Handling flammable substances (including the risk of auto ignition)
* Open flames (candles, for example, during Advent in the foyer, at the ticket booth or in administration offices).

The protection against these risks are not covered in these Guidelines.

The security risk assessment has to take into consideration that fire protection measures might influence human behaviour or the whole security concept (e.g. escape doors that open automaticaly after a fire alarm).

### Natural Hazards

Natural hazards include:

* Heavy rain and accumulation of waste water, e.g. due to technical problems in the sewerage system or the building’s supply system
* Floods and storm surges
* Storm
* Hail
* Heavy snow
* Vibrations due to earthquakes, erosion, landslide.

The protection against these risks are not covered in these Guidelines.

### Other Hazards

In addition to the risks outlined above, further risk may accor that are not covered in this document as

* technical hazards
* kidnapping
* espionage
* etc.

# Walls, Floors, Ceilings and Roofs

## General

Mechanical resistance to forced entry depends on the type of material, its strength, the thickness and the craftsmanship or installation.

When examining the resistance, particular attention should be paid to the following:

* Walls, floors, ceilings
* Roofs of single-storey buildings, in particular halls without intermediate ceilings
* Roofs, insofar as they can be reached without great difficulty or with simple aids (e.g. with ladders, via annexes, canopy roofs, balconies, fire ladders, outside gratings)

## Resistance of Walls, Floors, Ceilings and Roofs

The materials of walls, floors, ceilings and roofs can be classified according to their resistance to forced entry as shown in Table 4‑1. Plaster, insulation and panellings do not increase the resistance.

# Doors

## General

Physical conditions, flow of persons and goods and costs determine the types of door that can be implemented, e.g.

* standard doors,
* sliding doors,
* swing doors or
* revolving doors.

These security guidelines deal predominantly with standard doors, but other types can be secured in a comparable manner.

Door resistance depends on the material used, the door construction and the installation. Doors must be sturdy enough that they offer a minimum resistance to physical attack, such as kicking, jumping against the door, blows with the shoulder, and the use of simple tools.

|  |  |
| --- | --- |
| **Construction/Resistance** | **Materials:** |
| Light construction  Low resistance | * light construction panels, e.g. made of plasterboard * wood products, wood (boards, sheets) * sandwich plates * gas concrete * plastics * profiled panels, corrugated panels * clay (in half-timbered design) * glass blocks, profiled construction glass * cavity blocksa * stone, also in half-timbered design, under 120 mm thick |
| Solid construction  Sufficient resistance  (adequate to SG 4) | * gypsum/steel composite components for mechancial reinforcement of light construction panels1) * stone (e.g. brick, chalk sandstone), also in half-timbered design, 120 mm thick and up * concrete |
| Exceptionally solid construction  Increased resistance  (adequate to SG 6) | * stone (e.g. brick, chalk sandstone), 240 mm thick and up * concrete, 200 mm thick and up |

Table 4‑1 Resistance classification of construction methods and materials, basic descriptions

For all doors in walls that border the insured rooms or the exterior, it is important that the door leaf and door frame as well as door hinges, door lock, fittings, striker plate and, where applicable, additional security devices are matched with respect to their burglar-resistant effect.

Therefore, all security-relevant parts of a door must be evaluated in order to identify and remedy any mechanical weaknesses.

The resistance of existing doors to burglary can be increased by the replacement or installation of additional locks, sturdy door hinges, high-quality locks and lock cylinders, burglar-resistant door plates, burglar-resistant striker plates, reverse hooks and burglar-resistant fillings.

## Weak Points of Doors

Doors without burglar-resistant features – these include the vast majority of doors – can be overcome without the use of any special tools.

**Door leafs** (or door fillings) can, if they are not sturdy enough, be easily kicked in. The door leaf can break away totally or partially, leaving an opening big enough to walk through. All-glass door leafs as well as honeycomb-core and tubular particle board doors (also known as plywood doors) are particularly at risk here.

Weak door leafs such as these cannot be adequately secured even with high-quality security products, e.g. with cross bars, as they do not have the necessary fundamental stability.

**Striker plates** can become deformed under heavy strain and expose the lock bolt. If incorrectly installed, striker plates can be completely torn out of the frame.

A common burglary method is to break open the door using simple levering tools. The use of crowbars is normally not even necessary; quite average screwdrivers are often all that are required to destroy the striker plate.

**Mortise locks** can deform completely under pressure, releasing the bolt. Again, the normal burglary method is levering using the simplest of tools (a screwdriver). If the bolts of the door lock are not sufficiently sturdy, they bend at the slightest shoulder blow or slip out of the striker plate.

**Lock cylinders** can be easily broken off if they protrude by more than 3 mm from the door plate on the exterior. Often a simple wrench is all that is required. In addition, there are special tools that make breaking off the lock cylinder even easier.

Cylinders that are not equipped with a special pull protector can also be overcome by pulling the cylinder core (the turning part of the cylinder into which the key is inserted) out of the lock. Special tools are used here that can exert very high pulling forces.

**Door plates** can be bent or torn out of the door leaf if the mounting or the material of the plate is not sturdy enough. Weak door plates can be prised off the door leaf without great effort using a small screwdriver or a wedge. As soon as the lock cylinder is exposed, entering takes just a matter of seconds. The cylinder can then be simply broken off, e.g. as described above.

**Hinges** are often made of cheap and not very sturdy materials. Furthermore, the hinges are often only slotted into the door leaf or door frame. These “spigot hinges” can be easily pulled out of their mounting when pressure is applied to the door (shoulder blow, prising off using a screwdriver).

## Door Leafs

Door leafs can consist of various materials, such as glass, wood, metal, plastic or a combination of these.

Especially weak door leafs must be doubled up to achieve the fundamental stability necessary for a security upgrade. If the door’s load capacity or the door hinges are not adequate for doubling, then an effective security upgrade is not possible.

When a door is not required as a through access, there is the possibility of permanently sealing the door opening; for example, by masking the door and door frame with a steel panel or a sturdy wood panel anchored into the wall.

### Honeycomb-Core and Tubular Particle Board Doors

Honeycomb-core and tubular particle board doors are the most popular door leafs. They are used mainly for interior or entry doors and bear a low mechanical resistance due to their thin top layer and their weak wood frames, despite having a door leaf thickness of approx. 40 mm. In the construction of door leafs, a differentiation is made between middle layers of

* synthetic honeycomb
* cardboard or paper honeycomb
* plywood or hard masonite strip
* tube core pressboard or
* pressed straw.

For better protection against sound, fire, radiation, heat or smoke, door leafs should be thickened and the middle layers reinforced. Door leafs reinforced with middle layers of joined, solid wood rods are frequently confused with solid wood door leafs. These middle layers do not increase the door’s effectiveness against burglars.

Glass fillings are often used. In this case, an opening for the glass filling is cut out of the door leaf. A glass pane is mounted into the cutout with both sides fixed by window trim.

Neither burglar-resistant glazing nor fencing can provide such a door leaf with adequate burglar resistance.

### Panelled Door Leafs

Panelled door leafs consist of wood frames containing glass fillings, solid wood or other materials, e.g. plywood or particle board.

The burglar-resistant effect of these door leafs is dependent on the stability of the wood frames, the fillings and the fastening of the fillings in the wood frames.

Panelled door leafs are often too weak to enable adequate burglar resistance. Weak door leafs must be doubled up for stability.

Glass fillings are normally laid into a notch and fixed on the opposite side by trim or, more simply, only puttied.

Security-relevant fastening is only adequate when the trim is mounted and screwed from the inside and not removable from the outside.

Fillings of “normal” glass (i.e. not burglar-resistant glass), also including insulated and wired glass, are not secure. This type of glazing needs to be secured with steel fencing (not removable from outside) or be replaced by a burglar-resistant glazing.

### Double Door Leafs (Solid Wood)

Double door leafs consist of a single frame encased on both sides with solid wood. High-resistance materials can also be used between the interior and exterior casing, e.g. steel sheets.

Locks, door hinges and other fittings can be especially stable when fixed to double doors. This is owing to the construction of double doors, and allows a high level of protection against intrusion.

### Metal Frame Door Leafs

Metal frame door leafs mostly consist of a metal-clad frame with glass fillings.

Fillings of “normal” glass (i.e. not burglar-resistant glass), also including insulated and wired glass, are not secure. For secure protection against intrusion, it is necessary that this type of glazing is secured with steel fencing (not removable from outside) or replaced by a burglar-resistant glazing (attached fencing is not suitable.

The filling trims must be mounted from inside, firmly screwed in place and in no way removable from outside.

### Synthetic Door Leafs

Synthetic door leafs consist, on the whole, of a single running frame made of metal or synthetic cladding. The cladding is glued to both sides of the synthetic panels. Since the doors are mostly constructed of PVC or a similar material, the door’s stability must be reinforced with an inner steel frame.

Fillings of “normal” glass (i.e. not burglar-resistant glass), including insulated and wired glass, are not secure.

Therefore, it is necessary that this type of glazing is secured with steel fencing (not removable from outside) or replaced by a burglar-resistant glazing (attached fencing is not suitable.

### Steel Door Leafs

Steel door leafs are mostly double-walled. Yet in most cases, this is still not adequate resistance to intrusion.

Steel door leafs with glass fillings can also be moulded into special shapes. These fillings weaken the door’s burglar resistance. In order to increase protection against intrusion, this type of glazing can be secured with steel fencing (not removable from outside) or be replaced by a burglar-resistant glazing.

The filling trims must be mounted from inside, firmly screwed in place and in no way removable from outside.

When possible, VdS-approved mortise locks should always be used (see section 4.5.6). The use of additional bolts is advisable if the door’s construction only permits a small cylinder housing that closes on just one turn (e.g. double bolt lock, mortise lock with a swing bolt or a hook bolt,).

Steel door leafs are often used as **fire doors**. One must be careful that subsequent changes do not sacrifice the fire door’s approval. But a wide range of changes are permissible with door frames (e.g. installation of an additional bolt lock in or on a door leaf). In this case, it is important that legal specifications regarding the modification of fire-resistant closures are observed.

### All-Glass Door Leafs

All-glass door leafs are mostly manufactured from pre-stressed single-pane safety glass (SPSG). The term “security glazing” refers here exclusively to industrial safety and not protection against intrusion. It is important to note that SPSG offers no protection against intrusion.

Special locks must be used with all-glass door leafs (see section 4.5.12).

### Door Frames

It is particularly important that the door frames be adequately fastened at the hinges and the striker plate. Door frames must be fastened firmly to the wall in at least six places. Please observe the manufacturer-provided fastening specifications for burglar-resistant doors.

A connection with the floor (metal sill, metal base) increases the door frame’s stability.

## Door Security Components

### Door Hinges

The selection of door hinges is dependent on the construction and material of the door frame and door leaf. According to the method of fastening used for the door frame and the door leaf, there is a choice of screw-on, mortise, drill-in or weld-on hinges. Simpler hinges, e.g. drill-in hinges, are often not effective against intrusion.

Doors with high security requirements in regards to intrusion must have three stable interior hinges.

With hollow-core doors, the hinges must be installed with reinforcing plates or special fastening nuts. The bearing surface must be large enough, otherwise the door may split.

This is similarly true for special hinges designed for chipboard door frames. The suspension bolts are additionally secured against tampering by screwing a fastening plate to the outside of the frame. Hinges of this kind cannot be retrofitted.

Weld-on hinges fasten securely to metal doors, providing a strong resistance to intrusion. Although weld-on hinges are very stable, steel doors not designed as fire doors do not offer defined resistance to burglary. In this instance, hinge bolts are not intended to provide protection against intrusion, but simply to prevent excessive buckling in case of fire.

As a rule, it is recommended to fit door hinges to the interior of the door. But do not avoid concerns relating to exterior door hinges: the hinge pins (bolts) must be secured and the hinges themselves protected against being knocked or sawed off.

Additional protection of weak door hinges is recommended, e.g. securing the hinge sides.

### Securing the Hinge Sides

Door hinges are often only fastened with one bolt in the door leaf and one in the frame. These hinges can break or crack very easily. Doors with weak hinges must be protected by additionally securing the hinge sides. This is especially true if the hinges are mounted on the outside of the door.

The hinge bolts can offer additional stability if their striker plates are anchored to the masonry using special plugs.

### Striker Plates

In order to be able to securely bolt a door, high quality striker plates and stable striker bolts are required at the mortise locks. Typical problems with striker plates include

* weak material,
* inadequate fastening or
* inadequate length.

As long as a VdS-approval is lacking, the following minimum requirements should be observed:

* The striker plate (steel) thickness should be at least 3 mm.
* The striker plate length should be a minimum of 300 mm, preferably 500 mm.
* The fastening of the striker plate must be adequately stable and correspond to the various materials used, as well as the construction of the door frame itself (e.g. anchored and glued to the masonry).

**Striker plates that are bolted at various points** must be stable and of an adequate length as well. Striker plates that are bolted at various points must be mounted “in one piece”, so that burglars are not able to easily crack them out. Here as well, the mounting must specifically match the type of door frame. This increases stability and makes it more difficult for possible intruders to prise the striker plate off.

**Latch and bolt recesses in metal frames** can be reinforced with multiple screwed or welded solid steel plates. These are used to prevent the frame from cracking out under force.

The level of burglar resistance offered by weaker metal frames can be raised by installing additional locks, e.g. double bolt locks.

## Locks

Locks are differentiated by their type (e.g. mortise lock), the locking mechanism (e.g. cylinder or Chubb lock), the type of bolt (e.g. slide or hook bolt) and the application (e.g. all-glass door lock).

With all locks, it is important to pay attention that the cylinder housing is sealed all around, and that bolt penetration is at least 20 mm.

If the bolt penetration is less, it is not guaranteed that the bolt will engage properly with the striker plate. In this case, the lock has to be replaced.

Other problems common to locks are:

* latch or bolt are not made of adequately strong material (e.g. plastic or die cast),
* the bolt is too short (when in locked position, a part of the bolt remains in the cylinder housing; if this length is too short, then the bolt will easily break loose under force).

### Mortise Locks

A mortise lock is slotted into the mortise on a door leaf. It is important that the door leaf is adequately stable, so that the lock cannot be broken with simple physical force. Burglar-resistant door plates significantly reinforce the stability of mortise locks.

Better than simple mortise locks are **multipoint locking devices.** Here as well, it is important to observe the minimum bolt penetration of 20 mm.

Multipoint locking devices have the advantage that with a single touch, the door is bolted at various points simultaneously. This greatly increases resistance against intrusion on the lock side.

Products equipped with slide bolts, simple hook bolts or round pins often do not fully engage with the striker plate when closed.

Lock varieties equipped with hook bolts should be used to achieve adequate resistance against intrusion.

### Cylinder Locks (Cylinder Mortise Locks)

These locks are designed for use with locking cylinders. The locking cylinder is inserted into the cylinder housing and fastened with a screw.

Cylinder mortise locks are tested and approved and are graded into the following classes in accordance with their performance:

|  |  |
| --- | --- |
| Class | Performance |
| A (VdS); X (Country A), Y (Country B), … | burglar-resistant |
| B (VdS), … | increased burglar-resistance |

Table 4‑2 Classes of mortise locks

<national requirements can be added – information until nov 2019>

### Slide Bolt Locks (Mortise Locks for Tubular Frame Doors)

Slide bolt locks can be used as cylinder or Chubb locks.

Secure bolting is not possible when slide bolt locks are used in hollow-core doors offering a bolt penetration of only 10-12 mm. However, special locks can offer the minimum required bolt penetration of 20 mm.

Users in Sweden may address the rule SSF 3522. <with the comment as given I cannot formulate a better shaped advice>

### Swing Bolt Locks (Mortise Locks for Tubular Frame Doors)

Swing bolt locks are cylinder or Chubb locks designed for installation in hollow-core doors. In open position, the hook bolt sits upright in the cylinder housing; the bolt length is not, as with slide bolts, limited by the narrow depth of the cylinder housing. Upon locking, the bolt pivots approx. 30 mm out of the lock.

Swing bolt locks can also be installed in swing doors. Since a few millimetres of the bolt are viewable in the closed position, the lock must be able to withstand a high degree of force. The bolt, often manufactured in a so-called sandwich style, must be especially safeguarded against sawing. Furthermore, the bolt must be protected from forceful kickback in the locked position.

Swing bolt locks with hook bolts are mainly used in sliding doors. With these locks, the hook-shaped bolt snaps into the striker plate, preventing the door from sliding.

Swing bolt locks with hook bolts are recommended for use with turning doors and swing doors, as hook bolts markedly increase a door’s resistance against intrusion.

### Locking Cylinders

#### Mechanical Locking Cylinders

Locking cylinders are very important for the security of a door. However they can only offer safety in conjunction with the lock and the door plate. Profile cylinders are commonly used in Germany. Round and oval cylinders are quite rare.

When breaking and entering, criminal offenders attack locking cylinders in a variety of ways. They must therefore afford protection against any methods available to burglars:

* breaking
* drilling
* picking
* pulling

These methods of attack are effectively made more difficult by VdS-approved locking cylinders.

Locking cylinders are differentiated between those with and without an integrated pull protector. Door plates which offer no special protection against extraction tools are often employed. In such cases, only integrated pull protectors can offer adequate burglar resistance (see section 2.5.18).

Special requirements are provided for master key systems and associated locking cylinders. The following list provides the various profile cylinders approved by VdS for use in master key systems.

Locking cylinders are not only used in mortise locks, but also in double bolt locks, all-glass door locks, retrofit products and lockable window catches.

Profile cylinders are tested and approved by VdS and are graded into the following classes in accordance with their performance:

|  |  |
| --- | --- |
| **Class** | **Performance** |
| A | burglar-resistant |
| B | increased burglar-resistance |

Table 4‑3 Classes of locking cylinders (VdS, Germany)

<national requirements can be added – information until nov 2019>

#### Electronic Locking Cylinders

Conventional locking cylinders process the locking code mechanically. Joining these mechanical solutions are a growing number of locking cylinders that decipher and process the code by means of electronic components and information, either exclusively or in addition to a mechanical reading.

Products that offer both technologies are described as mechatronic. In addition to the mechanically functioning cylinder pins, mechatronic cylinders are capable of triggering one or more further locking points in the cylinder. Mechatronic cylinders offer a key of typical size and shape, yet expanded by means of electronic components. These components may be visible or invisible, e.g. a chip.

Exclusively electronic locking cylinders do not have a conventionally shaped key. The key often consists of only a single chip, which can be produced in a variety of shapes. An all-electronic key may come as a chip card or equally as a key chain pendant the size of a penny. The shape is completely up to the imagination of the manufacturer.

The operation of a mechatronic cylinder is similar to mechanical cylinders. Upon contact, additional information is exchanged between the key and the cylinder. With all-electronic cylinders, the information can be exchanged without any contact at all. In this case, the locking code is transmitted by radio signal.

A marked advantage of electronic/mechatronic products is exhibited in use with master key systems. There is always the risk that one or more keys may get lost with master key systems. This may require changing over the entire system. Electronic keys have the advantage that entry authorisations can generally be changed at any time. An electronic key can also be declared “invalid”.

This programmability offers a range of possibilities in the design and adjustment of master key systems. Time restrictions are – depending on the product – easy to incorporate (e.g. an office worker’s key functions between 8:00 and 18:00, a custodian’s key only functions between 8:00 and 10:00). Furthermore, it may be important to cancel authorisation for keys of retired employees or missing keys. The allocation of entry authorisation can also be limited to certain days and rooms, e.g. if some workmen need access to a specified area.

The changeover from mechanical to electronic locking cylinders is often possible without any complications, as electronic products do not differ in size and shape from conventional products and fit perfectly in cylinder locks.

For all locking cylinders – mechanical, electronic, mechatronic – the VdS requirements are equally valid, e.g. resistance against so-called intelligent opening methods.

Users in Sweden may address the rule SSF 3522.

### Chubb Locks

The security of Chubb locks against forced opening and picking is essentially dependent on the number and condition of the pins/levers. The quantity and arrangement of a lock’s pins/levers are intended to determine the shape of a key’s teeth (symmetric or asymmetric). The number of pins/levers is equivalent to the number of notches, less one for bolt movement. Chubb locks should have at least seven symmetrically or five asymmetrically arranged pins/levers.

Chubb locks with asymmetric double-bit keys can have an even greater number of pins/levers and thereby offer a higher level of security.

### Locking Systems

A locking system locks any part of a façade which can be opened, e.g. a closed door. These elements can only be unlocked with a key or code. A locking system essentially consists of an authorisation control device with an input unit, interlocking device and protective measures.

It is also possible to implement electronic solutions alongside more conventional mechanical locking systems. In these cases, the traditional key can be replaced by other data transfer devices, e.g. a chip card.

Mechanical keys can also be combined with electronic storage or processing media. For example, a conventional key can be equipped with a transponder that delivers additional or alternative information via radio signal. Research is currently underway to include the identification of biometric data, such as fingerprints and iris recognition.

Locking systems should be tested and approved and graded into the following classes in accordance with their performance:

|  |  |
| --- | --- |
| Class | Performance |
| A | basic burglar resistance |
| B | medium burglar resistance |
| C | advanced burglar resistance |

Table 4‑4 Classes of locking systems (VdS, Germany)

Users in Sweden may address the rules SSF 3522, prSSF 3523, SSF 200.

<national requirements can be added – information until nov 2019>

### Warded Locks

Only a few locking methods are possible for warded locks. They have only one locking pin and are easily opened with simple tools.

For this reason, warded locks should only be used for interior doors not requiring burglar-resistance.

### Cylinder Protectors, Key-Hole Locks

The subsequent installation of a cylinder protector or a key-hole lock only slightly hampers the use of lock picking tools on a warded lock. Warded locks, retrofitted as such, do not offer protection against intrusion.

### Additional Protection

A variety of additional protection measures are capable of increasing the level of a door’s burglar-resistance. Additional locks, capable of access from the outside, should be equipped with locking cylinders protected against attacks.

*Note: Locks can normally be equipped with locking cylinders that lock simultaneously. This means that no additional keys are required for the extra locks.*

Please consider personal protection as well. Use a stable locking bar at all entry doors. When a locking bar is closed, the door can only be opened a crack. This offers a certain degree of protection against any unknown visitors.

Installation of additional security mechanisms requires special care, particularly with weak doors. They should be professionally installed by experienced handymen.

**Double bolt locks** offer better protection. They stabilise the door leaf along its entire width and enable simultaneous bolting of the door on both sides. The bolts enter stable lock cases, anchoring the door into the masonry. Many double bolt locks additionally offer a locking bar.

Doors that are seldom used, and where design is not of the utmost importance, can also be secured by means of simple crossbars. It is important to observe that the weight-carrying components are stably mounted and the crossbars well-secured. Crossbars can be especially well-secured with padlocks.

A specialist will be able to provide a customised solution.

### Multipoint Locks

Multipoint locks make use of massive bolts which lock the door from above, below and the sides. The bolt must be secured to an adequate depth in well-anchored pulley blocks or stone sockets, both above and below.

When properly installed, multipoint locks offer a high degree of mechanical resistance to intrusion due to their staggered locking points. They can be mounted on the door leaf or integrated into the door leaf, depending on their make. They are particularly well-suited for locking double doors. Multipoint locks must be lockable because they are accessible from the attack side when closed.

Multipoint locks are also available as retrofit products with VdS approval.

### Users in Sweden may address the rule SSF 3522.All-Glass Door Locks

All-glass doors must have special locks mounted onto the glass panes. It is advisable to install a lock on each door leaf. The bolts ought to shut by at least 20 mm above and below. Locking cylinders are protected with rosettes.

### Switch Locks

Switch locks are used to activate electronic doors, gates and roller blinds, or to control motor locks. They are generally designed for use with profile cylinders; please note that the profile cylinder must not protrude more than 3 mm. Exterior switch locks must rest in armoured casing. This hinders any unauthorised attempts at activation. A steel plate, accessible only by key, could enable such protection of the interior contacts and connections. Some switch locks will not accept such fittings, important for protecting the profile cylinder against extraction tools. In such instances, profile cylinders with integrated pull protectors must be used.

Leads to switch locks must be protected from attack. At best, they lay buried and run into the switch lock from behind. Switch locks are not to be confused with ancillary control equipment for setting intruder alarm systems. Due to their particular importance, ancillary control equipment must fulfil expansive requirements that are not necessary for common switch locks.

### Door Plates

Protruding locking cylinders, or door plates removable from outside, are practically open invitations to burglars. Weak door plates endanger not only the locking cylinder, but the entire area around the lock.

A tested and approved burglar-resistant door plate makes it more difficult to

* twist/break,
* extract and
* penetrate

the locking cylinder, and in addition, reinforces the door leaf in the region of the lock recess.

The door plate must

* tightly cover the locking cylinder
* hamper access to the locking cylinder
* hamper the use of tools
* be firmly screwed from inside
* be manufactured of steel, at least 10 mm thick (class B and C) and
* protect the mortise lock in the region of the pins.

By exception, rosettes may be used in place of burglar-resistant door plates when the latter cannot be installed.

*Note: Small door plates for metal or plastic hollow-core doors are available.*

Door plates should be tested and approved and graded into the following classes in accordance with their performance:

|  |  |
| --- | --- |
| **Class** | **Performance** |
| A | basic burglary protection |
| B | medium burglary protection |
| C | advanced burglary protection |

Table 4‑5 Classes of door plates (VdS, Germany)

<national requirements can be added – information until nov 2019>

## Burglar-Resistant Doors

New construction, renovation, or additions, or simply the exchange of old or damaged house and entry doors, offers a prime opportunity for the installation of tested burglar-resistant doors. The security features of burglar-resistant doors are not outwardly recognizable. They are offered in all commonly available materials, such as wood, plastic, metal, as well as in a variety of makes, e.g. with or without inset window. Burglar-resistant doors can hinder intrusion by means of tools and/or physical force. At the same time, additional requirements may be fulfilled, such as fireproofing or sound insulation.

The fundamental characteristics of tested and approved burglar-resistant doors are:

* securely mounted door leaf
* high quality hinges, and additional securing of the hinges where required (i.e. exterior hinges)
* high quality locking device (normally a multipoint locking device)
* burglar-resistant door plate
* locking cylinder protected against picking, drilling, and extraction
* any infills (e.g. glazings) are as sturdy as other parts of the door
* professional installation according to manufacturer specifications

At best, choose a burglar-resistant door that offers a locking bar and a peep-hole. Approved burglar-resistant doors often come prepared for connection to an intruder alarm system. The purchase of a tested and approved burglar-resistant door is especially recommended, as all parts are perfectly matched, guaranteeing intrusion protection as defined by its class.

Burglar-resistant should be tested, approved and graded into the following classes in accordance with their performance:

|  |  |
| --- | --- |
| **Class** | **Performance** |
| N | limited basic protection |
| A | as N, with additional protection against professional burglary techniques |
| B | as A, with additional protection against non-destructive burglary techniques |
| C | as B, with additional protection against electrically operated tools |

Table 4‑6 Classes of burglar resistant doors (VdS, Germany)

<national requirements can be added – information until nov 2019>

Even doors of Class RC2 are much stronger than conventional doors.

Users in Sweden may address the rule SSF 1078-

# Gates

Gates are just as important to secure as doors; the preceding commentary on doors is, in turn, valid for gates. However, the various types of gates mentioned below demand a separate treatment.

## Sliding gates

Sliding gates consist mostly of wood or metal. Rollers, which run on a track, are often mounted above the gate. Appropriate measures must be taken to hinder the levering of the gate, e.g. by a second track above the rollers. Sliding gates often rest on another track positioned on the ground, holding the gate in position.

A lock with a hook bolt can be used as the locking mechanism (see section 4.5.11). If the gate need not be lockable from the outside, the use of multipoint locks or a lockable bar on the inside is recommended.

## Rolling Gates

Rolling gates are mostly electronically-activated, due to their size. The control must be switchable, e.g. via the central shutoff of current from an interior switch lock. If it is not possible to install a switch lock on the inside, then it must be armoured (see section 4.5.13

Rolling gates must be additionally secured with lockable bolts, if possible a hook bolt lock (see section 4.5.4) with additional sideways-running multipoint locks. Locking a hook bolt is at times difficult, as when the striker plate is soiled.

An additional lockable bolt is not required if an interior drive mechanism is wired and capable of locking the rolling gate under high pressure. The use of a sliding barrier is optional (it protects the drive shaft).

The rolling gates must be mounted in adequately stable tracks. If the track is form-fitting, the gate must be engaged by a minimum depth of 20 mm. If the track is not form-fitting, then a minimum depth of 50 m is suggested.

Depending on the application, burglar-resistant roller blinds can be used instead of rolling gates.

## Multi-Panel Gates, Latch Gates

Multi-panel gates (latch or sectional gates) come with and without fillings, e.g. glazings. They can also be fitted with a slip door. An adequate locking mechanism is defined by the following characteristics:

* the fixed panel bar is lockable and sits at an adequate depth in the pulley blocks or stone sockets, above and below
* - the outer-lying hinges are well-mounted and the pins locked into position
* - a lock with a hook bolt is used

Large, heavy latch gates, moveable only by electric drive, can be secured with an interior switch lock. If the gate is equipped with a slip door, it must be secured just as normal doors (see section 2).

Fillings must be of burglar-resistant glass or equally strong material. Also, they must not be removable from the outside (i.e. by stripping the rubber seal). The window trim must be screwed in from the interior. Fillings may also be secured by interior fencing, given that they are not removable from outside, e.g. welded to the door leaf.

# Windows

## General

Windows and glass doors, as entry doors, are weak points of any structure.

Windows differ in the way they open. As such, they may be categorised as follows:

* vent window
* bottom hung window
* tilt and turn window
* skylight
* pivot window
* top hung window,
* sliding window or
* fixed window

The present guidelines deal with the most common types of windows, such as vent windows, bottom hung windows, and glass doors; other types of windows are equally important to secure.

## Weak Points of Windows

Windows without burglar-resistant characteristics, including the vast majority of windows, can be easily entered.

Even with the simplest of tools, these windows can be levered open in a matter of seconds. And visible damage hardly ever occurs, in contrast with levering doors.

Preferred burglary methods when breaking and entering through windows are:

1. Levering open a window sash with tools.

2. Entering through cracked windows.

3. Opening the window catch (breaking window near to catch).

Please observe:

* Standard fit, lockable window catches offer no protection against a burglar’s main means of breaking and entering: levering open a window sash with tools.
* Open and cracked windows invite burglars right in.
* Along with the catch side, the hinge side of a window must be secured.
* Multiple glazings, primarily used for heat insulation, have no effect on the mechanical security of a window. It is unimportant to a criminal whether he breaks a single or multiple glazing window. Also, a multiple glazing window does not necessarily shatter at a higher decibel then a single glazing window.

*Note: There is no vacuum between panes. This explains the lack of implosion when the window is shattered.*

* Glazing with a built-in metal mesh or so-called safety glass is also lacking in any effective protection against intrusion. The term “safety glass” refers here exclusively to industrial safety and not protection against intrusion.

## Window Friezes

Window friezes should be fastened securely to the masonry on each side, e.g. window clamps or wall anchors. The notch area lying between the frame and the frieze should also be fitted so as to hamper any attacks with tools (e.g. levering tools).

## Security Components for Windows

There are also many effective security components available for retrofit: to protect windows against levering, breaking and unlocking. They vary in respect to their installation, functionality and stability. Security components may be mounted visibly or invisibly, depending on their individual design.

### Fittings

The locking mechanisms (fittings/hinges) integrated into the window pane and window frame are often too weak. A lockable window catch – concerning window fittings that are not burglar-resistant – should not be viewed as a security measure.

Typical weak points in standard fittings are:

* The material used for the fittings is unsuitable (e.g. shatterable zinc die casting).
* The number of pins is too low, e.g. tumbler pins (length of bolt which engages striker plate is too low). Window panes and frames have a simple function: they keep the wind and rain out. They can easily be pushed out of the striker plate, eliminating any semblance of burglar-resistance.

**Window fittings with mushroom head pins** are preferable as a security technology. Due to their T-shape, the pins manage to “claw” the opposing piece.

In many cases, professionals can later install fittings with mushroom heads in order to secure windows against burglary.

### Additional Protection Devices

Windows with standard fittings can be retrofitted for additional security.

Security devices must be installed at several points in order to protect the entire window or door. They must be installed across the entire area accessible to burglars.

Retrofit products are offered for a variety of applications. All additional bolting must be able to fix the window or door in the closed position. As a general rule, retrofit products offer a solid protection against intrusion when:

* tested and VdS-approved,
* an adequate number of devices are implemented and,
* products are mounted securely.

It is also important to secure the hinge side, as well as the catch side.

Standard **window catches** can be exchanged for special retrofit products. These guarantee the window is securely locked, both above and below.

*Note: When cracked, windows offer no protection against intrusion (even when secured with multipoint locks or window locks with a locking bar). Breaking and entering through cracked windows is only marginally hindered by additional security devices. The only benefit: causing more noise than a window without additional security devices. This at least alerts anybody present to the attempted break-in, and as early as possible. From the perspective of burglar protection, a cracked window is always an open window.*

Products are available that lock/unlock with a key or a simple knob. There are also additional locks which lock automatically when the window is closed. These should not be used with glass doors, as this creates the risk of accidentally locking oneself out.

Special products are offered for bay windows.

Special products can also be used for securing the hinge sides of windows and terrace doors..

Sometimes the installation of normal, approved retrofit products is not possible. In some such situations, it may be possible to use telescoping bars. They must fasten on both sides into the masonry and can be used to secure the window on both hinge and catch side.

## Glazings

### Non-Resistant Glazings

Glazings incorporating the following types of glass offer no protection against intrusion:

* crystal mirror glass/float glass
* ornamental glass
* multi-pane insulated glass
* wired glass
* single-pane safety glass, e.g. Sekurit ©
* U-shaped glass
* glass blocks, barring the use of any special security components

Single-pane safety glass (Sekurit), wired glass or thin composite safety glass must be used in low walls, entry doors or escape routes as they prevent accidents. They are often falsely perceived to be burglar-resistant due to their description as safety glass.

These types of glass are also not amply improved in terms of burglar resistance by the later installation of shatter-resistant window film.

### Burglar-Resistant Glazings

Burglar-resistant glazings consist of multi-pane glass connected by layers of durable, tearproof synthetic film. Depending on its make, composite safety glass (CSG) offers protection against thrown objects and breaking and entering. The glass will split upon impact, however the broken pieces cling fast to the synthetic film; forced entry is thereby considerably hindered.

Composite safety glass can also be manufactured from multi-pane insulated glass. Insulated glass can also achieve an effective level of burglar resistance when incorporated with synthetic films or plates.

Burglar-resistant glazings should be tested, approved and graded into the following classes in accordance with their performance:

EH 01 is the lowest class and EH 3 the highest class in terms of resistance against penetration.

|  |  |
| --- | --- |
| **Class** | **Performance** |
| P4A | basic *impact* resistance |
| P5A | advanced *impact* resistance |
| P7B | basic *shatter* resistance |
| P8B | medium *shatter* resistance |
| EH 3 (German classification; no equivalent in European classes) <Paulus: we possibly can delete this line> | advanced *shatter* resistance |

Table 6‑1 Classes for glazing

<national requirements can be added – information until nov 2019>

Users in Sweden may address the rule SSF 200.

### Bullet-Resistant Glazings

Bullet-resistant glazings are differentiated into eight classes of resistance according to EN 1063 (Glass in building - Security glazing - Testing and classification of resistance against bullet attack ). They may be required due to the nature of a business or for reasons of personal security

The classification is based on the type of weapon fire used, i.e. make of weapons and bullets. The use of bullet-resistant glazing is only sensible if the walls, as well as the window frames, are bullet-resistant. When installing burglar-resistant glazing, please observe that the correct side of the glazing faces the protected area. Bullet-resistant glazings are not necessarily burglar-resistant. For further information, see EN 1063.

### Alarm Glasses

An alarm glass typically consists of composite safety glass with an alarm wire insert or of pre-stressed single-pane safety glass with an embossed alarm loop. With composit safety glass (CSG), the alarm triggers when the glass is broken and the inlaid wire disrupted. With single pane safety glass (SPSG), the glass easily shatters, simultaneously disrupting a detector located in the corner of the glazing.

Alarm glasses should be burglar-resistant.

### Window Joints

Window joints should be avoided in the design of glazings. Otherwise, the joints must be protected against attack. Elastic sealing can be covered from the outside by non-removable aluminium or steel. Attacks on window joints can also be hindered by the use of glass cement.

## Burglar-Resistant Windows

New construction, renovation, or additions, or simply the exchange of old or damaged windows or terrace doors (glass doors) offers a prime opportunity for the installation of tested **burglar-resistant windows or glass doors**.

Burglar-resistant windows can hinder intrusion by means of tools and/or physical force.

Burglar-resistant windows are categorised according to their resistance into classes RC2, RC3, RC4 and RC5. Even windows of Class RC2 are much stronger than conventional windows. Burglar-resistant windows are offered in all commonly available materials (wood, plastic, metal) and are not visibly different from normal windows.

The fundamental characteristics of tested and approved burglar-resistant doors are:

* sturdy assembly of window panel and window frames
* resistant glazing
* proper fastening of the glazing into the window panel
* high quality hinges
* high quality locking device
* professional installation according to manufacture specifications

Tested and approved burglar-resistant windows often come ready for connection with an intruder alarm system.

The purchase of a tested and approved window is especially recommended as all parts are perfectly matched, guaranteeing intrusion protection as defined by its class.

Burglar-resistant windows are classified according to their performance characteristics as follows:

|  |  |
| --- | --- |
| **class** | **performance** |
| RC2 | limited basic protection |
| RC3 | as RC2, with additional protection against professional burglary techniques |
| RC4 | as RC3, with additional protection against non-destructive burglary techniques |
| RC5 | as RC4, with additional protection against electrically operated tools |

Table 6‑2 Classes for windows

## Cellar Windows and Skylights

### Cellar Windows and Light Shaft Safety

Cellar windows must be secured as all other easily accessible windows.

Typical weak points for cellar windows and light shafts are:

* weak rodent-proof screens
* vulnerable, ineffective locking mechanisms
* inadequate fastening to masonry
* unfastened window grates

In cases where a cellar window is accessible from a light shaft, the window itself can be secured or access to the window can be obstructed.

One recommendation is a covering with steel-reinforced glass blocks. It blends in with the sidewalk and offers the option of air ventilation. When completely closed over, it provides heat insulation and weather proofing. It can be secured against removal from inside the shaft. A further possibility is the construction of an emergency exit.

When light shafts are covered with a conventional grill, one must observe that it is

* stably and close meshed and
* snugly secured against removal.

Grills must always be anchored into concrete or masonry. Mounting into the wall of a plastic light shaft is not sufficient. In this case, the grill must be fastened to the cellar wall.

It is especially important to observe that the highly vulnerable corners on split grills are properly secured.

Rolling bars function particularly well in grills (see section 6.8.4).

### Skylights

Special glass used for skylights normally fulfils the requirements for accident prevention. This does not imply they are burglar-resistant.

It is therefore recommended to install a grill into the recess, such as is only removable from the inside, or a lock. Rim locks can also hinder entering from outside.

### Dome Lights

**Dome light safety** includes two basic options:

* installing a grill or
* use of burglar-resistant glass, if the dome light is not for ventilation

The dome light should be fastened so as to be nonremovable from outside.

Building permits and approvals must always be heeded, e.g. dome lights function as smoke outlet or escape route.

## Panels/Screens

### Rodent-Proof Screens

Rodent-proof screens offer protection against smaller intruders, but are no guarantee against criminal intrusion. Windows with rodent-proof screens must be treated as unsecured windows.

Please observe the following safety measures:

* secure any accompanying light shaft, see section 6.8.5
* secure windows with a grill, see section 6.8.4

Any existing rodent-proof screens, that cannot be removed, should be additionally reinforced with flat steel cut-outs anchored to the ledge or the window recess.

### Interior Panels

Interior panels are removable panels of solid wood or wood material of a comparable sturdiness. Interior panels offering protection against intrusion are defined by the following characteristics:

* the material is adequately thick
* the panels are not removable from the exterior.

Additional security can be achieved with interior steel sheeting, as well as crossbars with padlocks.

### Precast Masonry and Concrete Parts

Occasionally it is a good idea to wall over a cellar window, either completely or partially. Another option is installing a precast concrete unit over the cellar window.

### Grills and Rolling Shutters

Grills and rolling bars can be used to secure windows as well as doors. Fixed grills can be implemented to permanently secure a window. If windows need to be accessible, or securing a door is of interest, then rolling grills or sliding gates may be considered.

Burglar-resistant grills and rolling shutters should be tested, approved and graded into the following classes in accordance with their performance:

|  |  |
| --- | --- |
| **class** | **performance** |
| RC2 | limited basic protection |
| RC3 | as RC2, with additional protection against professional burglary techniques |
| RC4 | as RC3, with additional protection against non-destructive burglary techniques |
| RC5 | as RC4, with additional protection against electrically operated tools |

Table 6‑3 Classes for grills and roller shutters

Users in Sweden may address the rule SSF 012, SSF 033.

### Fixed Grills

Firmly anchored grills can significantly impede a criminal from entering.

Grills may be installed according to a tested and approved design, or a custom-tailored solution provided by the installer.

In the latter case, the grill opening should not exceed 10 x 20 cm (max. 12 x 25 cm).

Grills can be fastened to the following:

* wall
* recess
* directly to the window or door

When mounting to the wall, the minimum distance between anchoring and recess should be 10 cm. The screws must be secured against unscrewing.

Approved products are also available in the realm of welded grills. These grills may be customised to the dimensions of the window in question. In this scenario, the individual elements of the grill (screws and sockets) are welded together, as the entire unit is fastened to the window frame, wall, or recess.

Tested and approved grills may have grill bars with reduced profiles, offering special protection against metal saws. Grills which are not approved must offer square bars with a minimum thickness of 16 x 16 mm, or round bars with a minimum diameter of 18 mm. The grill bars must be anchored in the masonry.

Another possibility is the use of rolling bars. Rolling bars offer a high protection against saws, consisting of an outer pipe, and a pivoting inner bar. When a criminal attempts to saw through the grill, the interior bar rolls with the saw, making his work more difficult. The outer pipe should be a tough steel (e.g. ST 50). A hardened and tempered material (e.g. manganese steel) is suitable for the interior rolling bar.

If the wrong materials are used, the rolling bar can be easily smashed with a few hammer blows, joining it to the exterior bar and rendering it completely ineffective. Furthermore, it is important that the exterior pipe is welded to the frame. This hinders the deformation of the pipe and secures the free rotation of the inner bar.

Rolling bar grills are especially well-suited for use with light shafts.

As a general rule, please observe that the grills are anchored so as to be non-removable from the exterior.

### Rolling Shutters

Rolling shutters are mainly used to secure display windows and storefront doors. Secure rolling shutters are defined by the following characteristics:

* the grill is constructed out of highly-resistant material
* small distance between bars (mesh width)
* minimum depth in guiding tracks is 30 mm on both sides
* when more than 2.5 m in width, grill removal by constructive measures is effectively hindered
* an effective locking mechanism

A variety of locking mechanisms are possible:

* an inner-lying rim lock with hook bolt, profile cylinder and rosette
* a multipoint lock with locking cylinder and rosette
* a drive mechanism with hand crank, by which the gear unit locks a built-in profile cylinder
* a switch lock (armoured when located outside) for electrically-driven rolling grills, capable of locking the grill with high pressure

*Note: If the drive unit serves as the locking mechanism, it should be tested as to whether the grill may not also be forced open by a free-standing unit and thus comprise security.*

### Sliding Gates

Sliding gates are mainly used to secure display windows and storefront doors.

Secure sliding gates are defined by the following characteristics:

* the grill is composed of steel bars, minimum thickness 20 x 20 mm
* distance between bars (mesh width) does not exceed 120 mm
* the gate is of adequate strength
* minimum depth in guiding tracks is 30 mm on both sides
* when more than 2.5 m in width, grill removal by constructive measures is effectively hindered
* the tracks are constructed of at least 3 mm thick steel
* the tracks are adequately fastened (e.g. with wall anchors)
* an effective locking mechanism e.g. approved lock with hook bolt, approved profile cylinder and approved door plate or rosette
* the bolts on the attack side are not accessible without additional tools

### Burglar-Resistant Rolling Shutters

This type of security can be achieved with the aid of VdS-approved products. However, it must be clear that rolling shutters are only secure when closed. Furthermore, a potential criminal can easily surmise when rolling shutters have been closed for long periods (e.g. during vacation). In order to avoid any undesirable attention, rolling shutters can be automatically activated during these periods, e.g. via electromotive guidance.

Burglar-resistant rolling shutters may also be used as rolling gates (see section 6.8.4).

Simply securing rolling shutters from being raised does not suffice as protection against intrusion. Due to their design, conventionally sold shutters can be easily torn out.

Rolling shutters’ resistance is dependent both on the material used and on a professional installation according to manufacturer specifications. They can be further secured through the use of approved products.

# Safes

## General

Police experience shows that cash and valuables are exceptionally easy to transport. They are also favourable when it comes to disposing of the loot. This makes them highly coveted targets for any criminal. For this reason, cash and valuables are protected in containers offering a variety of mechanical security features. The existence of such a container can also be a security risk. When choosing a container, please consider whether it will be used outside of business hours.

Containers with additional security features are described as **storage units**, including safes and strongrooms. A storage unit’s mechanical resistance is important in drawing out the criminals’ time as they attempt to remove the valuables.

For this reason, storage units are offered with a variety of mechanical resistances and a high resistance against removal (via anchoring).The following description is intended to ease the selection of a suitable container and to clarify their different applications.

Tested and approved safes may be recognized by the insignia on the door’s interior.

Safes are differentiated according to their design as follows:

**Freestanding safes** offer their full range of security characteristics directly upon delivery (notwithstanding any previous use).

**Wall safes** acquire their full security value only after installation into a wall or floor opening and subsequent grouting of the opening (e.g. setting in concrete).

Safes are classified according to their mechanical resistance against intrusion by degrees of resistance, ranging from N (“0” according to EN 1143-1) to X. The use of safes which offer protection against core drills is highly recommended. At present, core drill protection is notated with the letters “CD” for core drill (previously “KB”). Safes can additionally offer a defined protection against explosives. These are notated with the letters “EX”.

One should also consider the diverse number of aged, but still operational containers with additional security characteristics (with or without quality verification). An overview of classically styled safes is available in section 7.

Important security measures concerning containers are:

* use of approved containers
* use of time locks/time locking devices for protection against burglary and robbery
* adequate anchoring of safes
* monitoring class-designated risks via IAS

Freestanding safes are directly at risk of burglary via removal and subsequent breaking of the container. VdS-approved freestanding safes with a mass of under 1000 kg (empty weight) may be anchored. Classically styled containers do not often have this option.

## Secure Storage Unit Monitoring

The monitoring of secure storage units must follow regarding guidelines for the planning and installation of intruder alarm systems, as VdS 2311, Intruder Alarm Systems, Planning and Installation, Appendix E (for Germany).

Users in Sweden may address the rule SSF 3522.

<national requirements can be added – information until nov 2019>

The following measures must be observed:

* monitoring of all safe doors during locking, unlocking and handling
* monitoring personnel during handling
* monitoring the complete safe during removal (according to its equipping)

Monitoring of handling can be achieved with a seismic detector or an electric field sensor, e.g. by integrating a penetration detector into the safe.

Electric field monitors do not enable the monitoring of opening, closing or removal. In this case, the additional use of motion detectors (e.g. seismic detectors) is required so as to immediately detect anything approaching the monitored safe.

*Note: If additional motion detectors are being used in a room with a safe, then all windows must be monitored for locking. However, a complete shell protection is not required.*

Approved safes from resistance degree III and up are either already equipped for IAS monitoring (i.e. they contain all safe-relevant monitoring measures) or at least prepared for the installation of such measures.

Specifications for strongrooms are available in the security guidelines for banks, savings banks and other financial institutions, VdS 2472, Security Guidelines for Banks Savings Banks and Other Financial Institutions (for Germany).

<national requirements can be added – information until nov 2019>

## Tips for Choosing the Right Safe

The collected experience of the police and the insurance industry is invaluable when considering the storage of cash and small valuables in locked safes. Their findings concerning the selection of containers is showcased in table 6-1 <number to be checked>.

Users in Sweden may address the rule FTR 1028.

## Classically Styled Secure Storage Units

Secure storage units are highly durable. Of course these older units relate to a different set of rules. Declaring the construction and security value of these older models is normally only possible after referencing the industry archives or by drafting an expert’s report.

# Intrusion and Hold-Up Alarm Systems (IAS, HUAS)

Intrusion alarm systems (IAS) are primarily designed so as to recognize intrusion/intrusion attempts and signal an alarm as early as possible. Physical security devices and the IAS monitoring must be perfectly synchronized, considering the anticipated intervention time, so as to enable the intervention team to arrive as early as possible and before the criminals have entered (see Fig. 6.01 <number to be checked, possibly to be deleted>).Cooperation between the electronic and mechanical elements must be designed so as to reduce any chances of a false alarm.

Users in Sweden may address the rule SSF 130.

## General

Intruder alarm systems (IAS) have to be selected according to the given risk. According to circumstances, the use of hold-up alarm systems (HUAS) may be suggested. An IAS monitors valuables and signals an alarm in case of forced entry. In case of hold-up or the threat of a dangerous situation, a HUAS is able to relay the situation to the intervention team.

Besides the European grades national regulations have to be taken into account.

## Grade 1 and Grade 2 Intrusion Alarm Systems

Grade 1 and 2 intrusion alarm systems offer basic protection against break-in attempts in the set and unset state; the alarm features an average responsive sensitivity. Application: households with few valuables.

## Grade 3 Intrusion Alarm Systems

Grade 3 intrusion alarm systems offer average protection against break-in attempts in the set and unset state; the alarm features an average responsive sensitivity.

Application: households with serious valuables, low-risk and medium-risk public premises, e.g. schools or supermarkets.

## Grande 4 Intrusion Alarm Systems

Grade 4 intrusion alarm systems offer advanced protection against break-in attempts in the set and unset state; the alarm features an advanced responsive sensitivity. A further overview of security-related functions is available.

Application: high-risk commercial premises, e.g. jewellery, fur or carpet stores.

## Installation

System installation must be performed by an approved installer according to the relevant guidelines for planning and installation of IAS. IAS and HUAS can be combined or installed as independent systems. System planning and installation must be performed by an approved IAS installer.

**Testing and Approval**

All IAS should be tested and approved by the national authority having jurisdiction.

Users in Sweden may address the rule SSF 1015.

## Setting/Unsetting

An input device must be used for the setting/unsetting of the IAS. Such a device must have a physical identification feature (e.g. mechanical or preferably electronic key or chip card). According to its classification, it may additionally require a mental identification device (e.g. PIN, digit, character or letter combination).

A time control may be used as an alternative, or in addition, to an input device with a mental identification feature. This feature unsets the IAS only at certain pre-programmable times.

Due to organisational factors such as visitor use of rooms, entering rooms by other means, differing working hours, maintenance work, multi-purpose rooms, it may be necessary to split the IAS into various security zones that can separately set/unset.

Infrequently used areas should be designed so as to remain in the set state until the time of use.

# Robbery

European investigations show that robbery ranks among the fastest growing property crimes. According to police findings, this trend increases in connection with the improvement of security systems. In addition to this, successful hold-ups often result in imitation crimes.

The danger of robbery exists for nearly all businesses and services when cash and/or expensive or easily transportable goods are present; this is particularly valid for jewellers, banks, petrol stations, amusement arcades and department stores.

Even when an entry demands a high degree of skill, all that is needed is the appropriate degree of determination.

Normally, criminals only threaten the use of force. But the victim must always consider that the criminal may use a weapon, and that the situation could escalate.

As for all security measures: the higher the risk, the greater the need for risk management. Naturally personal protection is the primary objective, in addition to the guarding of valuables.

Security measures and suggestions are developed here to minimise the risk of robbery.

The following factors are to the benefit of criminals if they apply, e.g.:

* targets of a hold-up are often open to the public and/or often unsecured during opening times
* planning and preparation for the crime may be relatively easy
* in action, crimes simply require speed and agility
* a risk/benefit analysis often favours the crime

## Risks

The risk to businesses and services is influenced by a variety of factors. However, the following methods of robbery are typically used:

* hold-ups during opening hours (typical hold-up)
* trapping employees upon entering or exiting (atypical hold-up)
* robbery of a transport vehicle carrying ingoing or outgoing money or valuables

## Protective Measures

The following measures (as shown) must be co-ordinated for optimal protection against typical and atypical hold-ups.

### Organisational Measures

Easy access to cash and other attractive goods should be eliminated, e.g. through:

* displays in separate rooms, possibly with access control and time lock
* locking especially valuable goods in secure storage containers with a time lock
* limiting the display of expensive goods in shop windows
* limiting the storage of attractive goods in open displays, or displays with simple locks

Further suggestions:

* keys to separate rooms, storage containers and showcases should be kept safe and apart from their corresponding locks
* personnel should be regularly advised as to general security measures and trained for correct behaviour in case of hold-up
* certain conditions may call for hiring security personnel (or doormen)
* a signal ought to be used, whereby the first employee of the day can alert co-workers to any potential danger (an “all clear” signal)
* cash in the register should be regularly sorted and thinned
* it should be evident that cash/valuables are under time lock and video monitoring (e.g. stickers, visible cameras)

### Construction-Based/Mechanical Measures

Access to cash and attractive goods can be successfully hindered by means of construction-based/mechanical measures. These measures include:

* showcases with tested burglar-resistance qualities
* polycarbonate window panes enclosing the window display, to block access to the contents from inside
* safes locked with time delay systems - use of money-counting rooms, preferably without a window or in a discrete location
* securing articles (e.g. fastening with steel wire)
* secure, closed cash control systems
* turnstiles (e.g. tripod)are occasionally recommended

### Electronic Measures

The previous examples of construction-based/mechanical measures can be effectively reinforced by electronic measures. These include:

* Approved and certified intrusion and hold-up alarm systems
* electronic keys, possibly combined with the function of activating a hold-up alarm, e.g. by pressing an alarm
* hold-up alarm in adjoining rooms/money counting room

*Note: A hold-up alarm should never activate an external alarm (e.g. a siren).*

* video monitoring of the business premises from adjoining rooms or via hidden cameras
* combination of hold-up alarm system and videotaping
* relaying of video images directly to the police or security company in instance of alarm
* dyeing system
* access control system with electric locking/unlocking of doors
* tracking system, e.g. for transport containers

### Robbery in Transit

The transportation of major valuables should only be performed by specialised, professional transportation companies. Transportation services must also comply with any national system of approval and accreditation.

In cases where valuables must be transported by employees, the following measures should be observed. In order to guarantee the highest possible security for persons and goods in transport, special measures are provided in the insurance requirements and/or the applicable specifications of the workers’ compensation board. These include:

* number and age requirements on the personnel involved in transport
* alternating the personnel involved in transport
* alternating route of transport, vehicles and times
* avoiding unknown surrounding
* avoiding recognition of the transport as such (e.g. use of neutral clothing and neutral transport containers)
* use of tracking system (GSM or GPS) and/or transport containers which offer a dyeing system that activates automatically upon wrongful access

# Security Classes, Definitions and Examples

## Introduction

Relevant for defining a security class (SC) for a special risk is on the one hand the possible loss for the company – named the seriousness of the event; on the other hand the temptation for burglars (e. g. values, visibility, possibilities of transportation and escape, possibilities for re-selling) – named the likelihood (cf. Figure 10‑1).

*Note 1: It must be stated that the examples give assistance for the business owner or insurer who individually is in duty to rate the individual risk and to formulate security requirements as well as possible coverage level. Risks are meant to be in closed premises.*

*Note 2: Please be aware that these guidelines discus material risks, exclusively. Risks possibly resulting from a loss of data or due to compromised data or IT systems are dealt with in other sets of rules. It is a given that national regulations are to be considered first and foremost.*

**SC 1**

Risks with relatively low amount of valuable assets; low interest for burglars to attack the premises expected.

Examples: bureau of an architect; ballet school; smithery;

flower shop; basic office; pottery, stationery

**SC 2**

Risks with relatively low amount of valuable assets; medium interest for burglars to attack the premises expected.

Example: restaurant; local governmental premises ; theatre; solarium; shoe shop; milliner

**SC 3**

Risks with medium amount of valuable assets; medium interest for burglars to attack the premises expected.

Example: Sports warehouse, shop at petrol stations; photographic techniques

**SC 4**

Risks with medium amount of valuable assets; high interest for burglars to attack the premises expected.

Examples: Superstore, tobacco trade, wine and spirits trade; bicycle dealer; fashion retailer; shop for information technology and mobile communication; perfumery

**SC5**

Risks with relatively high amount of valuable assets; medium interest for burglars to attack the premises expected.

Security Class especially for banks and financial institutions

**SC 6**

Risks with relatively high amount of valuable assets; high interest for burglars to attack the premises expected.

Examples: Jeweller, watchmaker



Figure 10‑1 Risk seriousness vs. likelihood

Users in Sweden may address the rule SSF 200.

# Requirements

Security measures should always be adapted to the individual situation. Conversely, case-specific security measures should not be formulated as all-inclusive requirements.

*Note on the layout of the following tables: When the “Requirement” column does not contain a security measure, the retrofit measures should be used in its place. This enables the highest possible level of protection.*

## Security Class SC 1

🡺SC, in the following tables as far as no European classes are named the German (VdS) classes are given; following our discussion in Bologna everyone is asked to fill in “his” national classes as well – **not later than end of November 2019** and give the information back to Paulus>

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Walls**, bordering the insured rooms (section 1)  <the “section” refer to what is described as “Sector” in 2.3 !  That has to be checked (here and in the following)> | - Solid construction | - With thin walls, raising the level of resistance is suggested, e.g. by reinforcing with gypsum/steel composite components  - Alternatively, the walls can be monitored with a Grade 3 IAS according to DIN EN 50131-1 <can anyone help with the correct EN-number for intruder alarm *systems*?> | Depending on the risk level, the “solid construction“ requirements may be ignored. |
| **Floors**, bordering the insured rooms (section 1) | - Solid construction | - With light construction, monitoring with a Grade 3 IAS is suggested |  |
| **Ceilings or Roofs**, bordering the insured rooms (section 1) | - Solid construction |  |
| **Doors** (section 1) | - Class RC2 burglar-resistant door (section 2.6) |  |  |
| Door leafs, door leaf infillings (section 2.3) |  | - With weak infillings, exchange for glazing of Class P4A  or  - Doubling with material of comparable stability, e.g. with 0.5 mm thick steel sheet  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for door security do not apply. |
| Fixed panels, in two-panelled doors (section 2.5.15 <number to be checked>) |  | - Vertical door bar with bolt penetration above and below  or  - Multipoint locks mounted on the door leaf | Vertical door bars which do not insert into notches must be lockable. |

Security Class SC 1 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| Locking mechanisms (Section 2.5.3) <number to be checked>) |  | - Class A lock and  - Class A locking cylinder  and  - Class A door plate and  High quality striker plate  or  - Class A locking system  or  - Double bolt  (German classes named) | Striker plates, hinge fasteners and door frames must be anchored into the adjoining wall.  With infrequent use, the door can be secured with an interior slide bolt and pad locks or an interior crossbar. |
| Hinges (Section 2.5.1) <number to be checked>) | - Sturdy interior hinges | - Hinge fasteners |
| Doors with controlled switch, driven by a key (section 2.5.17) <number to be checked>) |  | Required for exterior switch locks:   * Armoured mounting * Class A locking cylinder   (German classes named) |  |
| Doors with all-glass door leaf (section 2.3.7) <number to be checked>) | - Special locks (section 2.5.16) <number to be checked>) | Lock with  - Class A locking cylinder and  - Rosettes not removable from outside and  - Additional lock  or   * Class A locking cylinder   and  - Additional lock  (\*) Can be required as an additional measure:  - Grilling  (German classes named) |  |
| **Gates** (rolling, sliding and multi-panelled gates) (section 3) <number to be checked> |  | - Doubled wood gate leaf or double-layered steel gate leaf, e.g. gate leaf of steel sheets, at least 0.5 mm thick and  - Guiding tracks are not removable from outside, e.g. with covered upper wheel track  - Class A mortise lock with class A locking cylinder or class A locking system or Chubb lock, each with hook bolt and  - Striker plate with burglar-resistant characteristics  or  - Electric drive with neutral stop block and switch lock  - With exterior switch lock:  - armoured mounting  - Class A locking cylinder  (German classes named) | With infrequent use, the gate can be secured with an interior slide bolt or an interior crossbar with padlocks.  Slip doors and windows are treated the same as other doors and windows. |

- (\*) Required for serious valuables and/or high risk situations (e.g. isolated location).

Security Class SC1 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| With infillings (section 3.3) <number to be checked>) |  | - With weak infillings, exchange for glazing of Class P4A  or  - Doubling with material of comparable stability, e.g. with 0.5 mm thick steel sheet  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for gate or slip door security do not apply. |
| **Windows/ Glass doors** (section 4) <number to be checked>) | - Class RC2 burglar-resistant window (section 4.6) <number to be checked>) | - Exchange of glazing, according to risk, for glazing of class P4A.  - Exchange of fittings for those following  DIN 18104-2 or products of equivalent quality and  - Lockable window catch with Class A locking cylinder  (partly, German classes named)  or  - Installation of at least two retrofit products following DIN 18104-1 or products of equivalent quality on windows with a width and/or height of up to 150 cm; with bigger windows, other retrofit products should be used  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  The exchange of fittings is intricate and requires professional knowledge.  Rolling shutters and grills must be secured against raising. |
| **Fixed windows (display windows)** (section 4) <number to be checked>) | - Class RC2 burglar-resistant window (section 4.6) <number to be checked>) | - Exchange of glazing for glazing of class P4A  or  - Interior second pane of class P4A  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | If grills are to be moved, then the locking mechanism must meet the requirements for doors.  Rolling shutters and grills must be secured against raising. |
| **Cellar windows** (section 4.7) <number to be checked>) | - Class RC2 burglar-resistant window (section 4.6) <number to be checked>) | - Grills with burglar-resistant characteristics  or  Precast masonry or concrete parts  or if the window is accessible via a concrete  - Securing the light shaft with non-removable rolling grill | Retrofitting as “Windows” is also possible. |

Security Class SC 1 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Window joints** (section 4.5.5) <number to be checked>) |  | - Securing with metal profiles, not removable from exterior | Window joints are to be avoided. |
| **Skylights** (section 4.7.2) <number to be checked>) |  | - Additional lock |  |
| **Dome lights** (section 4.7.3) <number to be checked>) |  | - Dome lights are secured against unscrewing from the exterior  or  - Grill or rolling grill, interior, with burglar-resistant characteristics | When dome lights are used as smoke outlets, the use of grills in the outlet channel must first be tested as to whether the bars will block the free flow of air. |
| **Fanlights** (Section 4) <number to be checked>) | The securing must follow “Windows” or “Fixed windows” depending on layout. | |  |
| **Other openings** | The securing must follow “Doors” or “Windows” depending on layout. | |  |
| **Individual elements** | Securing must be individualized according to the dangers present, e.g. mechanical fastening to prevent theft, IAS monitoring. | |  |
| **Safes** (section 5) <number to be checked>) | Depending on the value of the goods, storage containers with security features (safes) corresponding to insurer specifications. | |  |
| **Video Surveillance** (section 6) <number to be checked>) | Individualized according to risks. | |  |

## Security Class SC 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Walls**, bordering the insured rooms (section 1) <number to be checked>) | - Solid construction | - With thin walls, raising the resistance level is suggested, e.g. by reinforcing with gypsum/steel composite components  - Alternatively, the walls can be monitored with a Grade 3 IAS | Depending on the risk level, the “solid construction“ requirements may be ignored. |
| **Floors**, bordering the insured rooms (section 1) <number to be checked>) | - Solid construction | - If the construction is not solid, grade 3 IAS monitoring is suggested |  |
| **Ceilings or Roofs**, bordering the insured rooms (section 1) <number to be checked>) | - Solid construction |  |
| **Doors** (section 2) <number to be checked>) | - Class RC2 burglar-resistant door (section 2.6) <number to be checked>) |  |  |
| Door leafs, door leaf infillings (section 2.3) <number to be checked>) |  | - With weak infillings, exchange for glazing of Class P4A  or  - Doubling with material of comparable stability, e.g. with 0.5 mm thick steel sheet  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for door security do not apply. |
| Fixed panels, in two-panelled doors (section 2.5.15) <number to be checked>) |  | - Vertical door bar with bolt penetration above and below  or  - Multipoint locks mounted on the door leaf | Vertical door bars which do not insert into notches must be lockable. |

Security Class SC 2 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| Locks (section 2.5.3) <number to be checked> |  | - Class A lock and  - Class A locking cylinder and  - Class A door plate and  - High quality striker plate  - Additional lock  or  - Multipoint locking device and  - Class A locking cylinder and  - Class A door plate and  - High quality striker plate  or  - Class A locking system and  - Additional lock  or  - Double bolt  (German classes named) | Double bolts are recommended when securing with retrofit products.  Striker plates, hinge fasteners and door frames must be anchored in the adjoining wall.  With infrequent use, the door can be secured with an interior slide bolt and padlocks or an interior crossbar. |
| Hinges (section 2.5.1) <number to be checked> | - Sturdy interior hinges | - Hinge fasteners  or  - Double bolt |
| Doors with switch locks (section 2.5.17) <number to be checked> |  | Required for exterior switch locks:  - Armoured mounting with  - Class A locking cylinder |  |
| Doors with all-glass door leaf (section 2.3.7) <number to be checked> | - Special locks (section 2.5.16) <number to be checked> | - Lock with  - Class A locking cylinder and  - Rosettes not removable from outside and  - Additional lock  or  - Class A locking system and  - Additional lock  (\*) Can be required as an additional measure:  - Grilling  (German classes named) | (\*) Required for serious valuables and/or high risk situations (e.g. isolated location). |

Security Class SC 2 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Gates** (rolling, sliding and multi-panelled gates) (section 3) <number to be checked> |  | - Doubled gate leaf or double-layered steel gate leaf, e.g. gate leaf of steel sheets, at least 1 mm thick and  - Guiding tracks are not removable from outside, e.g. with covered upper wheel track  - Class A mortise lock with class A locking cylinder or class A locking system or Chubb lock, each with hook bolt and  - Striker plate with burglar-resistant characteristics  or  - Electric drive with neutral stop block and switch lock  - With exterior switch lock:  - Armoured mounting with  - Class A locking cylinder  (German classes named) | With infrequent use, the gate can be secured with an interior slide bolts or an interior crossbar with padlocks.  Slip doors and windows are treated the same as other doors and windows. |
| With infillings (section 3.3) <number to be checked> |  | - With weak infillings, exchange for glazings of Class P4A1  - Doubling with material of comparable stability, e.g. with 0.5 mm thick steel sheet  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazings must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for gate or slip door security do not apply. |
| **Windows/ Glass doors** (section 4) <number to be checked> | - Class RC2 burglar-resistant window (section 4.6) <number to be checked> | - Exchange of glazing for glazing of class P4A, depending on risks  - Exchange of fittings for those following  DIN 18104-2 and  - Lockable window catch with Class A locking cylinder  (German classes named)  <everyone is asked to fill in “his” national classes as well>  or  - Installation of at least two retrofit products on windows with a width and/or height of up to 120 cm; with bigger windows, other retrofit products should be used  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  The exchange of fittings is intricate and requires professional knowledge.  Rolling shutters and grills must be secured against raising. |

Security Class SG 2 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Fixed windows (display windows)** (section 4) <number to be checked> | - Class RC2 burglar-resistant window (section 4.6) <number to be checked> | - Exchange of glazing for glazing of class P4A  - interior second pane of class P4A  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | If grills are to be moved, then the locking mechanism must meet the requirements for doors.  Rolling shutters and grills must be secured against raising. |
| **Cellar windows** (section 4.7) <number to be checked> | - Class RC2 burglar-resistant window (section 4.6) <number to be checked> | - Grills with burglar-resistant characteristics  or  - Precast masonry or concrete parts  or if the window is accessible via a concrete  light shaft  - Securing the light shaft with non-removable rolling grill | Retrofitting as “Windows” is also possible. |
| **Window joints** (section 4.5.5) <number to be checked> |  | - Securing with metal profiles, not removable from exterior  or  - Securing with glass cement | Window joints are to be avoided. |
| **Skylights** (section 4.7.2) <number to be checked> |  | - Additional lock and  - Glazing of class P4A  or  - Grills with burglar-resistant characteristics |  |
| **Dome lights** (section 4.7.3) <number to be checked> |  | - Dome lights are secured against unscrewing from outside the exterior  or  - Grill or rolling grill, interior, with burglar-resistant characteristics | When dome lights are used as smoke outlets, the use of grills in the outlet channel must first be tested as to whether the bars will block the free flow of air. |
| **Fanlights** (section 4) <number to be checked> | The securing must follow “Windows” or “Fixed windows” depending on layout. | |  |
| **Other openings** | The securing must follow “Doors” or “Windows” depending on layout. | |  |
| **Individual elements** | Securing must be individualized according to the dangers present, e.g. mechanical fastening to prevent theft, IAS monitoring. | |  |
| **Cash, stocks, etc.** (section 5) <number to be checked> | Depending on the value of the goods, storage containers with security features which correspond to insurer specifications. | |  |
| **Intruder Alarm Systems** (section 6) <number to be checked> | Grade 3 IAS equipment and supplies | | For serious valuables. |

## Security Class SC 3

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Walls**, bordering the insured rooms (section 1) <number to be checked> | - Solid construction | - With thin walls, raising the resistance level is suggested, e.g. by reinforcing with gypsum/steel composite components | Electronic monitoring alone is not adequate. |
| **Floors**, bordering the insured rooms (section 1) <number to be checked> | Solid construction | Retrofitting is to be determined according to the risks and individual circumstances. |  |
| **Ceilings or Roofs**, bordering the insured rooms (section 1) <number to be checked> | Solid construction |  |  |
| **Doors** (section 2) <number to be checked> | - Class RC2 burglar-resistant door (section 2.6) <number to be checked> |  |  |
| Door leafs, door leaf infillings (section 2.3) <number to be checked> |  | - Exchange of infillings for glazing of class P4A or P5A  or  - Doubling with compressed wood (at least 10 mm thick) or  steel sheets (at least 1 mm thick) or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for door security do not apply. |
| Fixed panels, in two-panelled doors (section 2.5.15) <number to be checked> |  | - Vertical door bar with bolt penetration above and below  or  - Multipoint locks mounted on the door leaf | Vertical door bars which do not insert into notches must be lockable. |

Security Class SC 3 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| Locks (section 2.5.3) <number to be checked> | - Class B lock and  - Class B locking cylinder and  - Class B door plate and  - high quality striker plate  - Two additional locks  or  - Multipoint locking device with at least three bolting points and  - Class B locking cylinder and  - Class B door plate and  - High quality striker plate  or  - Class A locking system and  - Additional lock  or  - Double bolt and  - Additional lock  (German classes named) |  | Double bolts are recommended when securing with retrofit products.  Striker plates, hinge fasteners and door frames must be anchored in the adjoining wall. |
| Hinges (section 2.5.1) <number to be checked> | - Sturdy interior hinges | Hinge fasteners  or  - Double bolt |
| Doors with switch locks (section 2.5.17) <number to be checked> |  | Required for exterior switch locks:  - Armoured mounting with  - Class B locking cylinder |  |
| Doors with all-glass door leafs (section 2.3.7) <number to be checked> | - Special locks (section 2.5.16) <number to be checked> | Lock with  - Class B locking cylinder and  - Rosettes not removable from outside and  - Additional lock and  - Grilling  or  - Class B locking system and  - Additional lock and  - Grilling  (German classes named) |  |

Security Class SC 3 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Gates** (rolling, sliding and multi-panelled gates) (section 3) <number to be checked> |  | - Double wood gate leaf (doubled thickness of at least 10 mm) or double-layered steel gate leaf, e.g. gate leaf of steel sheets at least 1 mm and  - Guiding tracks are not removable from outside, e.g. with covered upper wheel track  - Class B mortise lock with class B locking cylinder or class B locking system or Chubb lock, each with hook bolt and  - Striker plate with burglar-resistant characteristics  or  - Electric drive with neutral stop block and switch lock  - With exterior switch lock:  - Armoured mounting with  - Class B locking cylinder  (German classes named) | With infrequent use, the gate can be secured with an interior slide bolts or an interior crossbar with padlocks.  Slip doors and windows are treated the same as other doors and windows. |
| With infillings (section 3.3) <number to be checked> |  | - Exchange of infillings for glazing of class P4A or P5AP5A  or  - Doubling with compressed wood (at least 10 mm thick) or  steel sheets (at least 1 mm  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for gate or slip door security do not apply. |
| **Windows/ Glass doors** (section 4) <number to be checked> | - Class A burglar-resistant window (section 4.6) <number to be checked> | Exchange of glazing for glazing of class P4A or P5A, depending on risks  - Exchange of fittings for those following  DIN 18104-2 and  - Lockable window catch with Class A locking cylinder  (German classes named)  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  The exchange of fittings is intricate and requires professional knowledge.  Rolling shutters and grills must be secured against raising. |

Security Class SC 3 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Fixed windows (display windows)** (section 4) <number to be checked> | - Class RC3 burglar-resistant window (section 4.6) <number to be checked> | - Exchange for glazing of class P4A or P5A  or  - Interior second pane of class P4A  or  - (\*) Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | If grills are to be moved, then the locking mechanism must meet the requirements for doors.  Rolling shutters and grills must be secured against raising.  (\*) If there is a risk that an intruder can simply reach inside, then securing the grill with an interior second pane of class P4A is required. |
| **Cellar windows** (section 4.7) <number to be checked> | - Class RC3 burglar-resistant window (section 4.6) <number to be checked> | - Grills with burglar-resistant characteristics  or  Precast masonry or concrete parts  or if the window is accessible via a concrete light shaft  - Securing the light shaft with non-removable rolling grill | Retrofitting as “Windows” is also possible. |
| **Window joints** (section 4.5.5) <number to be checked> |  | - Securing with metal profiles, not removable from exterior  or  - Securing with glass cement | Window joints are to be avoided. |
| **Skylights** (section 4.7.2) <number to be checked> |  | - Grills with burglar-resistant characteristics |  |
| **Dome lights** (section 4.7.3) <number to be checked> |  | - Dome lights are secured against unscrewing from the exterior  or  - Exchange of infillings for glazing of class P4A or P5A  or  - Grill or rolling grill, interior, with burglar-resistant characteristics | When dome lights are used as smoke outlets, the use of grills in the outlet channel must first be tested as to whether the bars will block the free flow of air. |
| **Fanlights** (section 4) <number to be checked> | The securing must follow “Windows” or “Fixed windows” depending on layout. | |  |
| **Other openings** | The securing must follow “Doors” or “Windows” depending on layout. | |  |
| **Individual elements** | Securing must be individualized according to the dangers present, e.g. mechanical fastening to prevent theft, IAS monitoring. | |  |
| **Cash, stocks, etc.** (section 5) <number to be checked> | Depending on the value of the goods, storage containers with security features which correspond to insurer specifications. | |  |
| **Intruder Alarm Systems** (section 6) <number to be checked> | Grade 4 IAS equipment and supplies for serious valuables | |  |

## Security Class SC 4

The security measures of security class SC 2 are to be followed. However, storehouses and departments with an especially high-risk assortment of goods should secure these target areas with mechanical security devices and electronic intruder alarm measures following security class SC 3.

Especially high-risk goods are for example:

* Antiques/art pieces
* Bicycles
* Communication devices/telephones/mobile telephones
* Glasses, optical products
* IT technology, e.g. computers, notebooks
* Jewellery, watches
* Leather clothing and goods
* Perfumes/cosmetics
* Persian rugs
* Spirits
* Sporting goods
* Tobacco and smoking utensils
* Weapons

With accessories where required

## Security Class SC 5

🡺SC, everyone is asked, following our discussion in Bologna, to fill in “his” national requirements – **not later than end of November 2019** and give the information back to Paulus>

In any case of doubts national rules and guidelines may apply.

Requirements are very special in the different countries. Therefore no common requirements are given here; for national requirements refer to the respective standard and guidelines

Denmark:

Belgium:

Finland:

France:

Germany: Requirements are described in the Security Guidelines VdS 2472 (for Germany) as well as VdS 5052 (Guidelines for Securing Automated Teller Machines, Risk Assessment and Measures)

Sweden: SSF 200 (foldable leaflets in English)

Switzerland:

Spain:

UK:

Italy:

## Security Class SC 6

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Walls**, bordering the insured rooms (section 1) <number to be checked> | - Exceptionally solid construction | - With thin walls or even strong walls, raising the resistance level is required  - Depending on the associated risks, the resistance level can be raised through reinforcing with gypsum/steel composite components | Electronic monitoring alone is not adequate. |
| **Floors**, bordering the insured rooms (section 1) <number to be checked> | - Exceptionally solid construction | - Retrofitting is to be determined according to the risks and individual circumstances |  |
| **Ceilings or Roofs**, bordering the insured rooms (section 1) <number to be checked> | - Exceptionally solid construction |  |
| **Doors** (section 2) <number to be checked> | - Class B burglar-resistant door (section 2.6) <number to be checked> |  | Depending on the risks, a class RC4 burglar-resistant door may be required. |
| Door leafs, door leaf infillings (section 2.3) <number to be checked> |  | - Doubling with compressed wood (at least 10 mm thick) or steel sheets (at least 1 mm thick)  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for door security do not apply. |
| Fixed panels, in two-panelled doors (section 2.5.15) <number to be checked> |  | - Vertical door bar with bolt penetration above and below  or  - Multipoint locks mounted on the door leaf | Vertical door bars which do not insert into notches must be lockable. |

Security Class SC 6 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| Locks (section 2.5.3) <number to be checked> |  | - Class B lock and  - Class B locking cylinder and  - Class C door plate and  - Pull protector and  - High quality striker plate and  - Two additional locks  or  - Multipoint locking device with at least three bolting points and  - Class B locking cylinder and  - Class C door plate and  - Pull protector and  - High quality striker plate  or  - Class B locking system and  - Two additional locks  or  - Two double bolts  (German classes named) | Double bolts are recommended when securing with retrofit products.  Striker plates, hinge fasteners and door frames must be anchored in the adjoining wall. |
| Hinges (section 2.5.1) <number to be checked> | - Sturdy interior hinges | Hinge fasteners  or  - Double bolt |
| Doors with switch locks (section 2.5.17) <number to be checked> |  | Required for exterior switch locks:  - Armoured mounting with  - Class B locking cylinder |  |
| Doors with all-glass door leafs (section 2.3.7) <number to be checked> | - Special locks (section 2.5.16) <number to be checked> | - Lock with  - Class B locking cylinder and  - Rosettes not removable from outside and  - Additional lock and  - Grilling  or  - Class B locking system and  - Additional lock and  - Grilling  (German classes named) |  |

Security Class SG 6 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Gates** (rolling, sliding and multi-panelled gates) (section 3) <number to be checked> |  | - Double wood gate leaf (doubled thickness of at least 10 mm) or double-layered steel gate leaf, e.g. gate leaf of steel sheets at least 1.5 mm thick and  - Guiding tracks are not removable from outside, e.g. with covered upper wheel track  - Class B mortise lock with class B locking cylinder or class B locking system or Chubb lock, each with hook bolt and  - Striker plate with burglar-resistant characteristics  or  - Electric drive with neutral stop block and switch lock  - With exterior switch lock:  - Armoured mounting with  - Class B locking cylinder  <European class to be checked; possibly not always given> | With infrequent use, the gate can be secured with an interior slide bolts or an interior crossbar with padlocks.  Slip doors and windows are treated the same as other doors and windows. |
| With infillings (section 3.3) <number to be checked> |  | - Exchange of glazing for glazing of class P7B  or  - Doubling with compressed wood (at least 25 mm thick) or steel sheets (at least 2 mm thick)  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Trims for infillings or glazing must be screwed on the interior.  Rolling shutters and grills must be secured against raising.  When grills or rolling shutters with burglar-resistant characteristics are being used, requirements for gate or slip door security do not apply. |

Security Class SG 6 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Windows/ Glass doors** (section 4) <number to be checked> | - Class B burglar-resistant window (section 4.6) <number to be checked> | - Exchange of glazing for glazing of class P7B, P8B, depending on risks and  <no equivalent on EH3 in Europe classes>  - Exchange of fittings for those following  DIN 18104-2 and  - Lockable window catch with Class A locking cylinder  (German classes named)  or  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Depending on risks, a class RC4 burglar-resistant window or the exchange of current glazing for that of class P8B or a combination of EH glazing and grill may be required.  An exchange of current glazing for that of class P78B. and particularly for EH 3, is only possible for highly stable, static elements.  <formulation to be checked: no equivalent on EH3 in Europe classes>  Trims for infillings or glazing must be screwed on the interior.  The exchange of fittings is intricate and requires professional knowledge.  Rolling shutters and grills must be secured against raising. |
| **Fixed windows (display windows)** (section 4) <number to be checked> | - Class RC3 burglar-resistant window (section 4.6) <number to be checked> | - Exchange of glazing for glazing of class P7B or EH 2  or for display windows  - Exchange of glazing for glazing of class P8B or EH 3  or  - Interior second pane of class P8B  or  - Exchange of glazing for glazing of class P7B or P8B  and  - Swinging, sliding, rolling or fixed grills or rolling shutters with burglar-resistant characteristics | Depending on the risks, a class RC4 burglar-resistant door may be required.  If grills are to be moved, then the locking mechanism must meet the requirements for doors in class SC 6.  Rolling shutters and grills must be secured against raising. |
| **Cellar windows** (section 4.7) <number to be checked> | - Class RC3 burglar-resistant window (section 4.6) <number to be checked> | - Grills with burglar-resistant characteristics  or  - Precast masonry or concrete parts  or if the window is accessible from a concrete light shaft  - Securing the light shaft with non-removable rolling grill | Depending on the risks, a class RC4 burglar-resistant door may be required.  Retrofitting as “Windows” is also possible. |
| **Window joints** (section 4.5.5) <number to be checked> |  | - Securing with metal profiles, not removable from exterior | Window joints are to be avoided. |
| **Skylights** (section 4.7.2) <number to be checked> |  | - Grills with burglar-resistant characteristics |  |

Security Class SG 6 Continued

|  |  |  |  |
| --- | --- | --- | --- |
| **Security Element** | **Requirements** | **Retrofit Measures** | **Additional Information** |
| **Dome lights** (section 4.7.3) <number to be checked> |  | - Burglar-resistant glazing of class P7B  or  - Grill or rolling grill, interior, with burglar-resistant characteristics | When dome lights are used as smoke outlets, the use of grills in the outlet channel must first be tested as to whether the bars will block the free flow of air. |
| **Fanlights** (section 4) <number to be checked> | The securing must follow “Windows” or “Fixed windows” depending on layout. | |  |
| **Other openings** | The securing must follow “Doors” or “Windows” depending on layout. | |  |
| **Individual elements** | Securing must be individualized according to the dangers present, e.g. mechanical fastening to prevent theft, grade 4 IAS monitoring. | |  |
| **Cash, stocks, etc.** (section 5) <number to be checked> | Depending on the value of the goods, storage containers with security features which correspond to insurer specifications. | |  |
| **Monitoring** (section 6) <number to be checked> | grade 4 IAS with complete shell protection, and hold-up alarm. | |  |

##### References

has anybody requirements to be named here?

<location changed from 1.2 (old) to Annex A (new)>

## References

**CFPA 06/S** Guidelines Emergency Exit Doors in non Residential Premises

**CFPA 11/S** Cyber Security for Small and Medium-sized Enterprises (SME), Requirements

**EN 1063** Glass in building - Security glazing - Testing and classification of resistance against bullet attack

SSF 012 Rullgaller och galler

SSF 033 Gallergrid – krav och provning

SSF 130 Projektering och installation av inbrotts- och överfallslarmanläggning

SSF 200 Regler för inbrottsskydd – Byggnader och lokaler

SSF 1078 Inbrottsskyddande dörrar – klassning, krav och provning

SSF 3522 Inbrottsskyddande låsenheter för montering – klassning, krav och provning

prSSF 3523 Digital låsenhet – klassning, krav och provnings

**VdS 2311** Intruder Alarm Systems, Planning and Installation

**VdS 2472** Security Guidelines for Banks Savings Banks and Other Financial Institutions

**VdS 5052** Guidelines for Securing Automated Teller Machines, Risk Assessment and Measures

@Paulus:

references to documents, rules, standards in the text to be listed here (will be completed after finishing the content);   
in the text the first naming shall use the full title when used for the first time