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date: 2007-12-17

Attached

Document: Working draft prEN 50xxx-1 Monitoring and Alarm Receiving Centre – Part 1: Location and construction requirements

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from:

d.d.:

- for your information
 - for approval. Final date: (no message to the contrary means agree)
 - for comments. Final date:
 - for discussion on the forthcoming meeting
-

Remarks: Final draft will be send to CLC/TC 79 secretary for circulation as Committee Draft.

Project number: 20279

prEN 50138-1:2007

English title: Monitoring and Alarm Receiving Centre – Part 1: Location and construction requirements

Titre français:

Deutscher Titel:

Document prepared by:

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CENELEC body: CLC/TC 79/WG 14

Date:

Submitted for:

Software used:

(Provisional cover page. The document's title page and foreword are prepared by CENELEC CS)

Foreword

This draft European Standard was prepared by the Technical Committee CENELEC TC 79, Alarm systems. It is submitted to the formal vote / Unique Acceptance Procedure.

The following dates are proposed:

- latest date by which the existence of the EN has to be announce at national level (doa) dor + 6 months
- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) dor + 36 months

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given for information only. In this standard, annex A is informative.

EN 501xx consists of the following parts, under the general title "Monitoring and Alarm Receiving Centre":

- Part 1: Location and construction requirements
 - Part 2: Requirements for technical facilities (in preparation)
 - Part 3: Procedures and requirements for operation (in preparation)
-

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Introduction

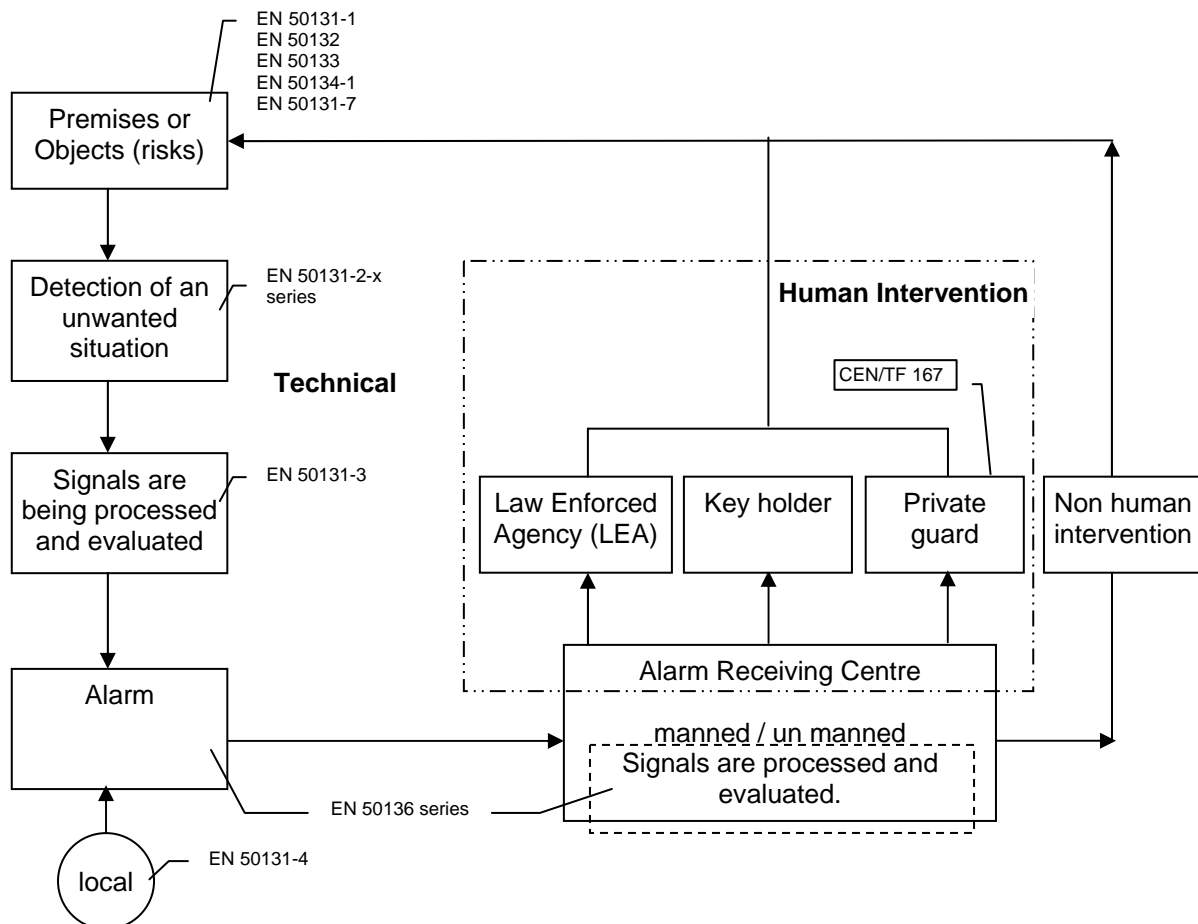
This European Standard applies to all Monitoring and Alarm Receiving Centres (MARC's) that monitor and/or receive and/or process signals that require an emergency response.

The abbreviation MARC describes the full functional scope of a Monitoring and Alarm Receiving centre. In all existing EN 50131 series accomplished under CLC/TC 79, Alarm systems, the abbreviation ARC is used. To avoid confusion and to achieve consistency in terminology the abbreviation ARC will be used throughout this standard, where MARC is equivalent for ARC.

The function of receiving, processing and initiating response actions by (human) intervention for information provided by remote detection and monitoring systems is not limited to only those signals as generated by Intruder and Hold-up Alarm Systems (I&HAS). The whole series of standards under CLC/TC 79, Alarm systems, encompasses CCTV surveillance systems (EN 50312), social alarm systems (EN 50134), access control systems (EN 50133) and audio and video door entry systems. All mentioned systems can send information, including alarms, to one or more remote locations for further processing, evaluation and (human) intervention.

All alarm information generated by other systems e.g. fire detection and fire alarm systems, (vehicle) tracking and tracing systems, guarding or telecommunication network supervision is regularly transmitted to one or more remote locations for further processing, evaluation and (human) intervention.

In all above circumstances external and internal criminal action, emergency situations and/or calamities can jeopardize the safety and security of human beings and or properties. The central locations where the receiving, processing and initiation of (human) intervention take place should comply with the requirements of this standard.



It is noted that this European Standard cannot supersede any legislative requirements deemed necessary by a National Government to control the security sector on a national basis. This standard can not interfere with items that are regulated by (inter)national regulations concerning external services (e.g. water, waste water, fuel supplies for gas and/or oil and mains power supplies).

1 Scope

This part of EN 501xx specifies the minimum requirements for the design, construction, and functioning equipment for premises where the monitoring, receiving and processing of (alarm) signals generated by alarm systems takes place as an integrated part of the total safety and security process. The requirements apply for applications in a remote configuration where multiple systems report to a single or multiple Alarm Receiving Centre(s) (ARC) as well as to a single site facility aimed for the monitoring and processing of alarms generated by one or more alarm systems installed within the perimeter of that particular site.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

<u>Publication</u>	<u>Year</u>	<u>Title</u>
EN 54	series	Fire detection and fire alarm systems
prEN 179	2003	Building hardware – Emergency exit devices operated by a lever handle or push pad, for use on escape routes
EN 356	1999	Glass in building – Security glazing – Testing and classification of resistance against manual attack
EN 1063	2000	Glass in building - Security glazing – Testing and classification of resistance against bullet attack
EN 1154 A1	1996 2003	Building hardware – Controlled door closing devices – Requirements and test methods
EN 1303	2005	Building hardware – Cylinders for locks – Requirements and test methods
EN 1522	1998	Windows, doors, shutters and blinds – Bullet resistance – Requirements and classification
prEN 1627	2006	Burglar resistant construction products (not for precast concrete parts) – Requirements and classification
EN 1906	2002	Building hardware – Lever handles and knob furniture – Requirements and test methods
EN 1990	2002	Eurocode – Basis of structural design
EN 1991	series	Eurocode 1 – Actions on structures
EN 1992	series	Eurocode 2 – Design of concrete structures
EN 1993	series	Eurocode 3 – Design of steel structures
EN 1994	series	Eurocode 4 – Design of composite steel and concrete structures
EN 1995	series	Eurocode 5 – Design of timber structures
EN 1996	series	Eurocode 6 – Design of masonry structures
EN 1997	series	Eurocode 7 – Geotechnical design
EN 1998	series	Eurocode 8 – Design of structures for earthquake resistance
EN 1999	series	Eurocode 9 – Design of aluminium structures
EN 12209	2003	Building hardware – Locks and latches – Mechanically operated

		locks, latches and locking plates – Requirements and test methods
EN 13501-2	2004	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services
EN 13779	2007	Ventilation for non-residential buildings – Performance requirements for ventilation and room-conditioning systems
prEN 14846	2003	Building hardware - Locks and latches - Electromechanically operated locks and striking plates - Requirements and test methods
EN 50131-1	2006	Alarm systems – Intrusion and hold-up systems – Part 1: Systems requirements
CLC/TS 50131-7	2003	Alarm systems – Intrusion systems – Part 7: Application guidelines
EN 50133-1	1996	Alarm systems – Access control systems for use in security applications – Part 1: System requirements
prEN 50136-1		Alarm systems – Alarm transmission systems – Part 1: General requirements for alarm transmission systems
TS 50136-4	2004	Alarm systems – Alarm transmission systems and equipment – Part 4: Annunciation equipment used in alarm receiving centres
EN 50272-2	2001	Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries
EN 62305	series	Protection against lightning

3 Definitions and abbreviations

3.1 Definitions

For the purpose of this European Standard, the following definitions apply.

3.1.1

access

action of entry into or exit from a security controlled area

[EN 50133-1, 4.01]

3.1.2

alarm company

organisation which provides services for ASs

[EN 50131-1, 3.1.7 mod]

3.1.3

alarm condition

condition of an AS, or part thereof, which results from the response of the system to the presence of a hazard

[EN 50131-1, 3.1.8 mod]

3.1.4

annunciation equipment

equipment located at an ARC which displays the alarm status, or the changed alarm status of ASs in response to the receipt of incoming alarm messages

NOTE The AE is not part of the ATS.

[prEN 50136-1, 4.1.10]

3.1.5

alarm receiving centre (ARC)

continuously manned centre to which information concerning the status of one or more AS is reported

[prEN 50136-1, 4.1.2]

3.1.6

ARC satellite

normally unmanned centre to which information concerning the status of one or more systems is reported and processed for onward transmission either direct or via further satellite to a ARC

3.1.7

alarm transmission equipment

collective term to describe SPT, AUT and RCT

[prEN 50136-1, 4.1.4]

3.1.8

alarm transmission system

ATE and networks used to transfer information concerned with the state of one or more ASs to the AE of one more ARCs

NOTE An ATS may consist of ATPs of different classes, e.g. for the use in so called "dual path systems".

[prEN 50131-6, 4.1.9]

3.1.9

audible verified

alarm signal verified by the ARC operator after having received audio information transmitted from the supervised premises and where the ARC operator made a decision that it is considered a genuine intrusion or genuine attempted intrusion has occurred

3.1.10

client

individual or corporate body with whom the ARC has entered into a contract to provide alarm monitoring services

3.1.11

control and indicating equipment

equipment for receiving, processing, controlling, indicating and initiating the onward transmission of information

[EN 50131-1, 3.1.22]

3.1.12

deliberately operated device

device which, when manually operated, causes an alarm signal or message to be generated

3.1.13

detector

device designed to generate an alarm signal or message in response to the sensing of an abnormal condition indicating the presence of a hazard

[TS 50131-7, 3.1.13 mod]

3.1.14

entrance lobby

space between exterior and ARC that provides a controlled and secured access to the ARC

3.1.15**fire resistance**

ability of an element of building construction, component or structure to fulfil, for a stated period of time, the required stability, fire integrity and/or thermal insulation and/or other expected duty in a standard fire resistance test

3.1.16**fault condition**

condition of a system which prevents a system or part thereof from functioning normally

[EN 50131-1, 3.1.26 mod]

3.1.17**intruder alarm system**

AS to detect and indicate the presence, entry or attempted entry of an intruder into the supervised premises

[EN 50131-1, 3.1.36]

3.1.18**mains power supply**

public supply mains for the electrical power of the ARC

3.1.19**monitoring**

process of verifying that interconnections and equipment are functioning correctly

[EN 50131-1, 3.1.45]

3.1.20**operator**

person responsible for the handling of messages presented at the AE

[TS 50136-4]

3.1.21**receiving centre transceiver**

ATE at the ARC including the interface to the AE and the interface to one or more transmission networks and being part of an ATP

NOTE In some systems this transceiver may be able to indicate changes of the status of an AS and to store log-files. This may be needed to increase the system availability in case of AE failure

[prEN 50136-1, 4.1.21]

3.1.22**remote centre**

location remote from the supervised premises and from the ARC, where AUTs are located

NOTE Typically the remote centre is also a monitoring centre and the place where a management system for the ATS is located.

[prEN 50136-1, 4.1.22]

3.1.23**restore**

procedure of cancelling an alarm, tamper, fault or other condition and returning the alarm system to a previous condition

[EN 50131-1, 3.1.56 mod]

3.1.24

sequentially verified

signals emanating from two or more independent detectors which are configured such that it is considered a genuine intrusion or genuine attempted intrusion has occurred

3.1.25

set

status of an (alarm) system or part thereof in which an alarm condition can be notified

[EN 50131-1, 3.1.59 mod]

3.1.26

standby power supply

energy source that is capable of supporting a ARC for extended periods

3.1.27

supervised premises

that part of a building and/or area in which a hazard may be detected by a(n) (alarm) system

[EN 50131-1, 3.1.66 mod]

3.1.28

systems

comprises a collection of components which are designed to produce specified solutions and/or results within defined parameters, which may be stored, recorded or transmitted to another ARC or emergency service

3.1.29

transfer hatch / chute

facility to transfer keys, documents or other objects

3.1.30

unset

status of a(n) (alarm) system or part thereof in which an alarm condition cannot be notified

[EN 50131-1, 3.1.79 mod]

3.1.31

user(s)

person(s) authorised by the client to operate a(n) (alarm) system

[EN 50131-1, 3.1.80 mod]

3.1.32

visually verified

alarm signal verified by the ARC operator after having received a visual image(s) transmitted from the supervised premises and made a decision that it is considered a genuine intrusion or genuine attempted intrusion has occurred

3.2 Abbreviations

For the purpose of this document, the following abbreviations are used:

AE	-	Annunciation equipment
ARC	-	Alarm receiving centre
AS	-	Alarm system
ATE	-	Alarm transmission equipment

ATS	-	Alarm transmission system
ATP	-	Alarm transmission path
AUT	-	Auxiliary alarm transmission system transceiver
CIE	-	Control and Indicating Equipment
CCTV	-	Close Circuit Television
I&HAS	-	Intruder and Hold-up alarm System
LEA	-	Law Enforcement Agency
RCT	-	Receiving centre transceiver
SPT	-	Supervised premises transceiver

4 Site selection

4.1 Risk assessment

Risk assessment is a series of logical steps to enable the examination of all risks associated with the ARC. Risk assessment includes risk analysis and risk evaluation and should be a continuous process.

A record of risk assessments shall be maintained and available for third party auditing.

4.2 Site location

The risk assessment shall be executed as a first step for site selection for an ARC.

An ARC shall be located inside a permanent building.

The ARC shall be located on a site affording low risks of fire, explosion, flooding, vandalism and exposure hazards from other sites. Where the ARC does not occupy all the building in which it is located, it should be separated from the rest of the building by a physical boundary consisting of walls, floors, ceilings and essential openings.

4.3 Site accessibility

Access to the building or part of the building in which the ARC is located should be occupied solely by the company operating the ARC.

5 Construction

5.1 ARC structure

The shell of the ARC comprises perimeter walls, floors, ceilings, entry and exit doors, ventilation inlets/outlets, entry points for service cables and pipes.

The construction of the ARC shall comply with EN 1990 up to and including EN 1999.

5.1.1 Protection against physical attack

The shell of the ARC shall supply resistance against physical attack in compliance with Table 1.

Table 1 – Minimum resistance against physical attack for ARCs

Construction elements	Materials	Thickness
Perimeter walls including wall between station and entrance lobby	Solid masonry	> 200 mm
	Cast concrete	> 150 mm
	Reinforced concrete	> 100 mm
	Solid steel	> 10 mm
Internal Walls	No requirements	No requirement
Floors and ceilings	Cast concrete	> 150 mm
	Reinforced concrete	> 100 mm

NOTE The construction elements listed in Table 1 cover the minimum to resist physical attack. If other construction material is applied the same resistance against physical attack must be guaranteed.

The resistance for doors, windows, shutters and blinds of an ARC and ARC satellite against manual attack shall be in compliance with prEN 1627 resistance class 4 (RC4).

5.1.2 Protection against bullet attack

The resistance for doors, windows, shutters and blinds of an ARC and ARC satellite against bullet attack shall be in compliance with EN 1522 FB4.

5.1.3 Protection against fire

The shell of the ARC shall have a fire resistance according to EN 13501-2 but never less than 30 minutes.

5.1.4 Protection against lightning

It is recommended to protect the ARC against the effects of a lightning strike in accordance with EN 62305. For each individual ARC a risk analysis in accordance with EN 62305-2 shall be made.

5.2 Facilities

Toilet and washing facilities shall be provided within the ARC. Facilities for the preparation of food and drink should be provided and should be located within the ARC. Where a cooking appliance is provided it shall be separated from the operational area by a construction with a fire resistance according to 5.1.3.

5.3 Openings

The only openings permitted in the structure of an ARC shall be:

- entrance lobby (see clause 5.4);
- emergency exit (see clause 5.6);
- glazed areas (see clause 5.7);
- service inlets and outlets (see clause 5.9);
- transfer hatch (see clause 5.10);
- ventilation (see clause 5.8).

5.4 Entrance lobby

The entrance lobby shall comprise two doors, the dimensions of which shall not exceed 2.5 m high by 1.1 m wide, separated by an entrance lobby the floor area of which shall not exceed 6 m². The doors shall be interlocked to prevent both being opened at the same time except under controlled circumstances. The ARC door to the entrance lobby shall open into the entrance lobby. The external

entrance lobby door shall always open outwards. One door shall have a fire resistance according to 5.1.3. The second door shall have a RC4 according to prEN 1627.

Locks and latches conforming to EN 12209, cylinders for locks conforming to EN 1303 and lever handles and knob furniture conforming to EN 1906 shall be in accordance with the requirements outlined in Table 2 to fulfill RC4.

Table 2: Resistance class

Resistance Class	4
EN 1303 Cylinder (Digit 7) Cylinder (Digit 8)	6 2
EN 1906 Furniture (Digit 7)	4
EN 12209 Locks (Digit 7)	7

Both doors shall be fitted with an unlocking device operable only from within the ARC, and shall be fitted with automatic self-closing and locking devices. The doors shall be electrically interlocked to prevent both being unsecured at the same time. A means shall be provided within the ARC to allow the locking devices to be over- ridden in the event of an emergency exit.

5.5 Lock mechanisms

5.5.1 Electromechanical lock

Electromechanical locking devices in compliance with prEN 14846 classification 2-R-2-B-0-C-7-H-B-3-E-4-3 (see Annex A.1 for the lock code requirement) shall be used to secure the entrance lobby doors. The fixing screws shall be protected against tampering while the door is in the closed position. There shall be a mechanical override for emergency release, protected against accidental use. If the locking device is being fitted in the door, the electrical cable to the lock shall be contained in a metal armoured door loop, and otherwise be mechanically protected where exposed.

5.5.2 Mechanical lock

Mechanical locking devices in compliance with EN 12209 classification 2-R-2-1-0-C-7-H-B-3-E (see Annex A.2 for the lock code requirement) shall be used to secure other doors.

Where alternative locking devices are used the above criteria shall be maintained.

5.6 Emergency exit

Additional emergency exit door(s), together with their hinges, frames, fixings, multiple locking points and unlocking devices, shall meet the same requirements for physical strength and resistance as specified in 5.5.2. The emergency exit door(s) shall open outwards and shall be provided with unlocking devices in compliance with EN 179 intended to be released only in the event of an emergency. The unlocking devices shall be operable only from inside the ARC.

5.7 Glazed areas

Glazed areas shall offer resistance to physical attack and bullet attack as specified in Table 3.

Table 3: Physical attack and bullet attack

	Physical attack	Bullet attack
Glazed areas	EN 356 classification P6B	EN 1063 classification BR 4 - S

The glazing shall have a fire resistance according to 5.1.3.

The interior of the ARC shall not be visible from any point external to the outer building.

5.8 Ventilation

For safety and security reasons a strict non smoking order shall apply to the ARC.

Ventilation systems for the ARC shall comply with EN 13779. Indoor air quality (7.4.1 of EN 13779) design assumptions for floor area per person shall be in accordance with the kind of use "small office room" (Table 12 of EN 13779). The use of air filters shall be in accordance with table A.5 of EN 13779 outdoor air quality ODA 1, indoor air quality IDA 3 resulting in filter classes F7. The sound pressure level in the ARC shall be 30-40 dB(A) (Table A.12 of EN 13779). With regard to internal loads the heat production of persons shall be in accordance with table A.13 of EN 13779 activity "seated, relaxed".

Openings in the structure of an ARC for ventilation systems should meet the requirements of 5.1.1 for resistance to physical attacks. Where the cross-sectional area of a ventilating inlet or outlet exceeds 0.02 m^2 , suitable alarm detection equipment shall be fitted to detect any attempt to enter the ventilation inlet. The ventilation inlet and outlet openings in the shell of the ARC shall be physically protected. Ventilation inlet and outlet openings shall be protected with air-tight flaps which can be locked in the closed position from inside the ARC.

5.9 Service inlets and outlets

A breach in the shell of the ARC for the admission of any service cables or pipe shall not exceed 0.02 m^2 in cross-sectional area.

The clearance around a cable or pipe should not exceed 1.5 mm. Where clearance around a cable or pipe exceeds 1.5 mm, it should be filled with material of equivalent specification to that of the shell.

5.10 Transfer hatch / chute

A transfer hatch or chute may be located in either (i) the wall of the ARC structure (ii) or in the entrance lobby and shall not exceed 0.02 m^2 in cross-sectional area.

When located in the ARC wall the hatch/chute should open into a restricted access area. The opening shall be constructed to a standard similar to that of the ARC. The points of entry should be interlocked to prevent direct access being available at any time and the opening and closing actions shall be controlled from within the ARC. The outer entrance shall always open outwards away from the ARC.

When located in the internal lobby wall of the ARC, the hatch/chute facility shall be operated with one entry point which shall be interlocked to the outer lobby doors such that neither the entry to the hatch/chute nor the entrance door can open at the same time. The opening and closing action shall be controlled from within the ARC. The hatch shall be constructed to a standard similar to that of the ARC

Voice communication system(s) shall be available between the operations area of the ARC and the outer entry of the hatch/chute.

6 Alarm systems of ARC

Electronic detection for all essential elements of the ARC shall be as follows:

- external attack (intruder);
- fire;
- access/exit;
- gas;
- communications;
- hold-up;
- personnel safety monitoring;
- signals from the electronic protection systems;

- CCTV.

All systems referred to in this chapter shall be maintained in accordance with the applicable standards. Where no standards exist maintenance shall be in accordance with manufactures guidelines to ensure reliability at all times.

6.1 External attack

Security shall be such that the ARC's structure is protected by an intruder alarm system in accordance with EN 50131-1 grade 3. Where the ARC is located other than at ground level, or where access may be gained from below (e.g. from a basement) then the floor of the ARC shall also be protected by the intruder alarm system.

The area of the building occupied by the company which operates the ARC, and in which the ARC is located, shall be protected by an intruder alarm system installed in accordance with EN 50131-1. Such intruder alarm systems shall incorporate a warning device to alert the ARC staff immediately on notification of an alarm.

Recommendations for design, planning, operation, installation and maintenance are given in Application Guidelines CLC/TS 50131-7.

NOTE A risk assessment should be carried out to determine the security grade of the intruder alarm system.

6.2 Fire

A fire detection system shall comprise components certified according to EN 54 series and shall be installed in accordance with EN 54-1.

6.3 Access/exit

An audible or visible alarm shall operate when any entrance door to the ARC or lobby is not secured. An alarm condition shall be signalled when an emergency exit door is opened or both the entry door to the lobby and ARC are open at the same time.

6.4 Gas

The ARC shall have detection systems for at least carbon monoxide, which will give warning to the ARC staff prior to levels reaching a concentration necessitating evacuation.

6.5 Communications

All cable based connections and wireless connections carrying alarm information to and from the ARC and the remote alarm systems connected to the ARC shall be protected, inside of the premises where the ARC is located, in such a way that interference is detected in accordance with prEN 50136-1.

6.6 Hold-up

Hold-up devices installed in accordance with EN 50131-1 shall be provided inside the ARC in positions adjacent to the entrance lobby, emergency exit(s) and the operating area of monitoring centre personnel.

6.7 Personnel safety monitoring

The safety and security of the ARC personnel shall be automatically monitored at a maximum of 60 minute intervals. In case of non response to the safety and security check within 60 seconds, an alarm shall be automatically extended to another ARC.

6.8 Signals from the protection systems

Signals from the protection systems as described in 6.1, 6.6 and 6.7 shall be transmitted to another ARC via a dual path system according to 6.10 of prEN 50136-1 and compliant with the performance parameters in Table 4.

The ARC receiving the signals from the protection systems shall not be located in the same building or direct vicinity.

Table 4 – Performance parameters of the dual path system

ATP	Transmission time	Transmission time Max. values	Reporting time	Substitution security	Information security	Availability
ATP main	D3	M3	T5	S2	I3	A4
Second ATP	D2	M2	T4	S2	I3	A3

6.9 Closed-circuit television surveillance

Surveillance shall be provided so that all approaches to the building in which the ARC is located can be monitored from within.

Surveillance shall exist to enable ARC staff to identify authorised persons before permitting them to enter the entrance lobby and to view any activity therein and to ensure a safe exit.

Surveillance shall also be provided to enable ARC staff to identify any personnel using a transfer hatch / chute.

7 Electrical power supplies

7.1 Mains supply

The mains supply shall be used as the principal source of electrical power, although reliable alternatives can be used, and a standby power source should be provided as a backup. Changeover to, or from, a standby power supply shall not cause the malfunction of equipment. There shall be an indication in the operations area of the current source of power.

The mains supply shall be such that it is capable of providing sufficient power for the normal load of the ARC and for simultaneously recharging the standby batteries to the required capacity within 24 h.

NOTE Standby power cables external to the shell should be protected against physical and fire damage.

7.2 Standby power supplies

A standby power supply shall be of sufficient capacity for the uninterrupted operation of all communication, signalling, monitoring, recording, essential ventilation and essential lighting equipment, including that required for the necessary surveillance for a period of 24 h based on a demand of 1.5 times the average requirement.

The standby power supply shall be either:

- a standby battery with associated charging equipment (7.2.1); or
- a standby generator or generators supported by a standby battery and associated charging equipment (7.2.2).

Standby batteries and any automatic changeover equipment should be located within the ARC.

7.2.1 Standby battery

The standby battery shall be brought into use automatically immediately the primary voltage falls below the level required to operate the ARC. The ARC shall return to primary power operation and the standby battery shall recharge automatically when the primary voltage is restored.

The standby battery shall be electrically protected by fuses or circuit breakers.

Battery installations shall conform to EN 50272-2.

Where a standby generator is used, the standby battery capacity shall be sufficient to power the ARC equipment for at least 2 h based on a demand of 1.5 times the average requirement.

Where a second standby generator is used, the standard battery capacity shall be sufficient to provide the required power for at least 30 min based on a demand of 1.5 times the average requirement.

7.2.2 Standby generators

A generator situated within the shell of the ARC shall be separated from the operations area by construction that would afford a fire resistance (see 5.1.3).

All standby generators shall be provided with a fuel supply on site sufficient to operate the generator for at least 24 h.

All standby generators shall have an independent means of starting which shall be automatic when the normal power supply fails. Operation of the standby generators shall be annunciated in the ARC. The battery required for starting a standby generator shall be charged by the primary power supply.

A standby generator not installed within the shell of the ARC shall be in a restricted access area, protected against intrusion and fire at the same grade as the ARC.

Annex A (informative) **Lock code requirements**

A.1 Electromechanical locks

Recommended classification: 2-R-2-C-0-C-7-H-B-3-E-4-3

Digit 1, category of use, grade 2: For use by people with some incentive to exercise care but where there is some chance of misuse, e.g. office doors (prEN 14846);

Digit 2, durability and load on latch bolt, grade R: 100 000 test cycles; 50 N load on latch bolt (prEN 14846);

Digit 3, door mass and closing force, grade 2: up to 200 kg door mass; 50 N maximum closing force (prEN 14846);

Digit 4, suitability for use on fire/smoke doors, grade B: suitable for smoke doors and fire doors of 30 minutes classification time (prEN 14846);

Digit 5, safety, grade 0: no safety requirement (prEN 14846);

Digit 6, environmental suitability, grade C: low resistance to corrosion, + 5 °C to + 55 °C, level 1 humidity (prEN 14846);

Digit 7, security on drill resistance, grade 7: very high security with drill resistance (EN 12209);

Digit 8, field of application, grade H: mortice, hinged door, forend support, no egress control by key (EN 12209);

Digit 9, type of key operation and locking, grade B: cylinder lock or latch, automatically locking (EN 12209);

Digit 10, type of spindle operation, grade 3: lock or latch for heavy duty unsprung lever handle operation (EN 12209)

Digit 11, key identification requirement, grade E: minimum six detaining elements, extended number of effective differs (EN 12209);

Digit 12, security electronic function, grade 4: yes to status indication, yes to prevention of locking in open position, yes to operation time of locking (prEN 14846);

Digit 13, security electronic manipulation, grade 3: Protection against; voltage drop, cutting of cables, wire manipulation, electromagnetical manipulation, level 4 resistance to electrostatic discharging according to EN 61000-4-2, level 4 resistance to electrostatic manipulation according to EN 61000-4-2 (prEN 14846).

A.2 Mechanical locks (EN 12209)

Recommended classification: 2-R-2-1-0-C-7-H-B-3-E

Digit 1, category of use, grade 2: for use by people with some incentive to exercise care but where there is some chance of misuse, e.g. office doors;

Digit 2, durability and load on latch bolt, grade R: 100 000 test cycles; 50 N load on latch bolt;

Digit 3, door mass and closing force, grade 2: up to 200 kg door mass; 50 N maximum closing force;

Digit 4, suitability for use on fire/smoke doors, grade 1: suitable for use on fire/ smoke resisting door assemblies, subject to satisfactory assessment of the contribution of the cylinder to the fire resistance of specified fire/ smoke resisting door assemblies;

Digit 5, safety, grade 0: no safety requirement;

Digit 6, corrosion resistance and temp., grade C: low resistance to corrosion, + 5 °C to + 55 °C, level 1 humidity;

Digit 7, security and drill resistance, grade 7: very high security with drill resistance;

Digit 8, field or door application, grade H: mortice, hinged door, forend support, no egress control by key;

Digit 9, type of key operation and locking, grade B: cylinder lock or latch, automatically locking;

Digit 10, type of spindle operation, grade 3: lock or latch for heavy duty unsprung lever handle operation;

Digit 11, key identification grade E: minimum six detaining elements, extended number of effective differs.