Dated: **February 2011**
To: **All NACOSS Gold, Systems Silver and ARC Gold approved companies and applicants for NACOSS Gold, Systems Silver and ARC Gold approval**

TECHNICAL BULLETIN No. 0018

Guidance on the application of BS 8418:2010 – Installation and remote monitoring of detector-activated CCTV systems – Code of practice
(Supersedes BS 8418:2003+A1:2005)

This Technical Bulletin gives guidance on the application of BS 8418:2010 ("the new BS").

"The new BS" is a full revision of the standard and there are many changes to the wording compared to BS 8418:2003+A1:2005 ("the present BS"). Therefore this Technical Bulletin does not attempt to compare the new BS with the present BS in any detail.

Please refer to the new BS for full details of the requirements.

This Technical Bulletin paraphrases the wording of the new BS in a number of areas. Whilst every effort has been made to convey the true meaning of the new BS the actual wording of the new BS prevails in situations where there might be a perceived conflict.

SUMMARY OF KEY POINTS FOR INSTALLERS

1 The new BS came into effect on 31 July 2010. However, the new BS recognizes that suppliers of products and services will require time to comply. Therefore, BS 8418: 2003+A1:2005 ("the present BS") will not be withdrawn until 31 July 2011.

2 Remote monitored detector-activated CCTV systems can be installed to the present BS up until 31 July 2011. However, from 1 August 2011 all new remote monitored detector-activated CCTV systems meeting BS 8418 must be installed to the new BS.

3 To install remote monitored detector-activated CCTV systems to the new BS it is necessary to obtain supplies of components and equipment meeting the new BS. Therefore, please refer to suppliers for further information.

4 The installer and the owner need to agree a CCTV system design proposal meeting sub-clause 4.1 of the new BS. This includes taking into consideration the factors detailed in Annex B of the new BS.

5 New provisions for wireless and semi-wired detectors are given in sub-clause 4.2.4 of the new BS.

6 New provisions for omitting and isolating detectors are given in sub-clauses 4.5.3 and 4.5.4 of the new BS respectively.

7 Two data transmission paths need to be provided except where wireless technology is the only possible means of communication – see sub-clause 4.5.9 of the new BS.

8 An uninterruptible power supply (UPS) needs to power the CCTV control equipment and communications devices for a minimum period of 4 hours if mains power fails (or for a minimum period of 30 minutes if mains power fails and a standby generator is provided) – see sub-clause 4.5.12 of the new BS.

9 Power supplies to detectors need to supply power for a minimum of 4 hours – see sub-clause 4.5.12.4 of the new BS.

10 Power supplies to detectors need to be monitored for failure. Failures need to be reported to the RVRC and/or indicated audibly at the protected premises – see sub-clause 4.5.12.5 of the new BS.

11 Commissioning needs to meet Clause 6 of the new BS and a commissioning checklist meeting Annex E of the new BS needs to be followed.

12 There needs to be liaison with the owner/user on completion of the installation (see sub-clause 6.9 of the new BS). A signature from the owner acknowledging receipt of operating instructions needs to be obtained.

13 A documented agreement for maintenance needs to be in place before the CCTV system is accepted for monitoring. Routine maintenance visits need to be carried out at least twice per year. The RVRC can carry out one of these visits remotely – see sub-clause 14.1.1 of the new BS.

14 The owner and the maintenance provider must agree documented criteria for maintenance or repair of the CCTV system and these criteria need to be communicated to the RVRC – see sub-clause 14.1.1 of the new BS.

SUMMARY OF KEY POINTS FOR RVRCs

A The new BS came into effect on 31 July 2010. However, the new BS recognizes that suppliers of products and services will require time to comply. Therefore, the present BS will not be withdrawn until 31 July 2011.

B If an RVRC takes on the monitoring of a CCTV system meeting the new BS then the monitoring of that CCTV system must also meet the new BS.

C From 1 August 2011, RVRCs must monitor all BS 8418 CCTV systems to the new BS irrespective of whether the systems are installed to the present BS or the new BS. This is except for sub-clause 11.4 of the new BS – see item G below.

D The RVRC needs to compare source images with relevant stored reference images at least once every six months – see sub-clause 6.4.3 of the new BS.

E There needs to be a documented agreement between the owner and the RVRC detailing owner responsibilities (see sub-clause 8.1 of the new BS). This includes the actions the RVRC needs to take in response to CCTV system failures (see sub-clause 8.5 of the new BS).

F There needs to be a documented agreement between the owner and the RVRC in the form of a response plan detailing the actions to be taken by the RVRC upon receipt of activations – see sub-clause 8.3 of the new BS.

G Digital CCTV recording systems (DCRS) need to meet BS 8495 if images may be required as evidence for a crime (see sub-clause 11.4 of the new BS).

Note: Meeting sub-clause 10.4 of the present BS is acceptable for CCTV systems installed to the present BS.

H The RVRC must carry out maintenance meeting sub-clause 14.1.3 of the new BS.

CONTENT

The following Table illustrates how the content of the present BS compares with the new BS.

TABLE 1 – Comparison of content of BS 8418:2003+A1:2005 and BS 8418:2010

BS 8418:2003+A1:2005	BS 8418:2010
1 Scope	1 Scope
2 Normative references	2 Normative references
3 Terms, definitions and abbreviations	3 Terms, definitions and abbreviations
4 CCTV system design and installation	4 CCTV system design
	5 Installation
5 Commissioning	6 Commissioning
6 Site operational procedures	7 Setting/unsetting procedures of the CCTV system on the protected premises
7 Owner responsibilities	8 Owner responsibilities and considerations
8 RVRC operator procedures	9 RVRC operator procedures
9 RVRC specifications	10 RVRC
10 RVRC procedures	11 RVRC procedures and documentation
11 Activation management	12 Activation management
12 Service levels	13 Service levels
13 General	14 General maintenance and personnel screening
	Annex A: Diagrams for positioning detectors
	Annex B: Factors affecting the design requirements for a CCTV system
	Annex C: Types of technology used in detection equipment
	Annex D: Illumination of the field of view of the camera
	Annex E: Checklist criteria for the commissioning of a CCTV system
Annex A: Setting procedure in the active state	Annex F: Setting procedure with a detector in the active state

DETAILS ABOUT THE NEW BS

Details about the new BS are given below according the relevant clause of the new BS.

Guidance or comment about the new BS is given in *italics*.

1 SCOPE (Clause 1 of the present BS)

The standard gives recommendations for the design, installation, commissioning, operation and remote monitoring of detector-activated CCTV systems.

The standard gives recommendations to the following parties:

a) Installers and maintenance providers on best practice for the design, installation, commissioning and operation of detector-activated CCTV systems.

This includes the installation and maintenance engineers working for the installers and maintenance providers.

b) Remote video response centres (RVRCs) monitoring CCTV systems.

c) Owners and users regarding the management of CCTV systems.

The following table illustrates how the standard applies to installers, RVRCs and owners. It illustrates how all parties need to work closely together in order to meet the new BS.

In the table, the term “installer” means “maintenance provider” where applicable. Also the term “owner” means “user” where applicable.

TABLE 2 – Application of BS 8418:2010 to installers, RVRCs and owners

Clause	Content	Applies to
1	Scope	Installer, RVRC and owner
2	Normative references	Installer and RVRC
3	Terms, definitions and abbreviations	Installer, RVRC and owner
4	CCTV system design	Installer and owner
5	Installation	Installer
6	Commissioning	Installer, RVRC and owner
7	Setting/unsetting procedures	Installer, owner and RVRC
8	Owner responsibilities and considerations	Owner, RVRC and installer
9	RVRC operator procedures	RVRC and owner
10	RVRC	RVRC and installer
11	RVRC procedures and documentation	RVRC, owner and installer
12	Activation management	RVRC
13	Service levels	RVRC
14.1	CCTV system maintenance	Installer, RVRC and owner
14.2	Personnel screening	Installer and RVRC

2 NORMATIVE REFERENCES (Clause 2 of the present BS)

The normative references given in the new BS are as follows:

BS 5979, *Remote centres receiving signals from fire and security systems*

BS 7671, *Requirements for electrical installations – IEE wiring regulations*

BS 7858, *Security screening of individuals employed in a security environment*

BS 7958:2009, *Closed-circuit television (CCTV) – Management and operation*

BS 8495, *Code of practice for digital CCTV recording systems for the purpose of image export to be used as evidence*

BS EN 50132‑7, *Alarm systems – CCTV surveillance systems for use in security applications – Part 7: Application guidelines*

3 TERMS, DEFINITIONS AND ABBREVIATIONS (Clause 3 of the present BS)

Please refer to the new BS for full details of the terms, definitions and abbreviations.

4 CCTV SYSTEM DESIGN (Clause 4 of the present BS)

4.1 CCTV system design proposal

The installer needs to agree a **CCTV system design proposal** with the owner which includes the following:

a) Diagram(s) showing the position of all cameras, detectors and their fields of view, the extent of the secure area, designated locations of parked vehicles and other movable objects or materials that could compromise the effectiveness of the CCTV system, and actual dimensions where drawings are not drawn to scale.

b) Type, location, mounting height and brief technical specification of cameras and lenses.

c) Type, location, mounting height, direction, range and brief technical specification of detectors.

This should include information regarding dormant periods after activation.

d) Identity of functional camera presets which are associated with detectors and the identity of the detectors with which they are associated.

e) Identity of fixed cameras associated with detectors and the identity of detectors.

f) Type and locations of any audio devices.

g) Data transmission paths used by the CCTV system, with details of the parties responsible for their implementation and their continuing provision and maintenance.

h) Artificial illumination provided, with details of the parties responsible for its implementation.

i) Location and brief technical specification of components such as controls, power supplies and storage devices.

j) Services for which the owner is responsible with details of the user responsibilities for correct operation of the CCTV system.

The factors given in **Annex B** of the new BS need be taken into consideration when creating a CCTV system design proposal. These include:

- detector configuration
- expected movement within a secure area
- conditions of the secure area
- environmental factors
- geographic location
- sources of heat
- open sites

4.2 Detector positioning and configuration

Except in cases where it would be inappropriate to have a camera covering the detection area created by the detector, the detection areas need to be such that activations occur in areas within the fields of view of the cameras.

Annex A of the new BS provides diagrams illustrating the correct positioning of detectors.

An example of where it would normally be considered inappropriate to have a camera covering a detection area is where a detector is installed inside public toilets.

The RVRC and the owner need to have an agreement regarding the expected response at the RVRC in cases where detectors include outputs for transmitting information to the CCTV control equipment about their status.

The secure area needs to be divided into multiple detection zones with detectors positioned so that events that are detected result in activations.

Detectors need to be positioned so that:

- movement outside the secure area is not detected

- they are not affected by the rising or setting of the sun

Detectors need to:

- meet specified requirements, such as detection range, and they need to be selected to minimize unwanted activations

- be adjustable in both the vertical and horizontal axis

Annex C of the new BS gives useful guidance on the types of technology used in detection equipment including:

- passive infra-red receiver
- active infra-red receiver
- microwave
- laser
- video analytics
- video motion detection
- perimeter fence protection
- buried sensor technology
- combined technology (which can help to avoid unwanted activations)

Manufacturer's recommendations need to be followed to ensure the correct operation of detectors.

Where multiple detectors are connected to a single input they must be individually identified by the CCTV control equipment, for example by individual IP addresses.

The following functions need to be provided where wireless and/or semi-wired detectors are used:

a) An indication for low battery voltage, which needs to be reported to the RVRC in the set condition.

b) An indication for loss of wireless signal, which needs to be reported to the RVRC in the set condition.

c) The fault conditions in a) and b) above also need to be indicated at the protected premises in both the set and unset conditions together with indications of the individual detector(s) that are affected.

d) An indication for a failed communication link via an output signal (one per channel) sent by the receiver.

e) A unique identification code assigned to a dedicated channel on the receiver identifying transmission devices belonging to the CCTV system.

f) A communication protocol, secure from unintentional or intentional data substitution. This should include 10,000,000 or more variations of identification codes, randomly generated by the CCTV system.

It is not necessary to indicate individual detector faults at the RVRC.

4.3 Camera positioning and configuration

Attention is drawn to Part 33 of Schedule 2 of the Town and Country Planning (General Permitted Development) Order 1995.

4.3.1 General

Camera positioning and configuration of the CCTV system needs to meet BS EN 50132-7.

Cameras need to be positioned so that:

- the areas covered by detectors are viewed

  This ties in exactly with the need for detection areas to fall within the fields of view of the CCTV cameras (see 4.2 above).

- they are not affected by the rising or setting of the sun

Fields of view need to be set up to achieve the desired results based on a 1.6 metre high target (which is roughly the average height of a human being).

For example to **detect** an event the field of view should be such that a 1.6 metre high target fills at least **10%** of screen height.

The following Table gives four examples of desired results.

TABLE 3 – Percentage of screen height filled by target to achieve desired objective

Desired Results	Percentage of Screen Height	Explanation
Detection	At least 10%	*Detection (referred to in the new BS as verification) means that the operator viewing the display screens is able to determine with a high degree of certainty whether or not a human being is present.*
Observation	25% to 30%	*Observation means that the operator viewing the display screens is able to see some characteristic details of the individual, such as distinctive clothing, whilst also being able to see some activity surrounding the incident being viewed.*
Recognition	At least 50%	*Recognition means that the operator viewing the display screen is able to determine with a high degree of certainty whether or not an individual shown is the same as someone they have seen before.*
Identification	At least 100%	*Identification means that with the target now occupying at least 100% of the screen height, picture quality and detail is sufficient to enable the identity of an individual to be established beyond reasonable doubt.*

The percentage figures above are taken from Home Office Scientific Development Branch Publication No. 28/09 – "CCTV Operational Requirements Manual 2009".

The entry/exit route needs to be viewed by a fixed camera or by a functional (PTZ) camera in its parked position.

Where functional (PTZ) cameras are the sole means of viewing the area, they need to be treated as multi-position fixed cameras through the use of defined presets rather than infinitely variable devices.

Where functional (PTZ) cameras using preset positions in association with alarm devices are deployed, any facility to alter the preset positions needs to be restricted to the installer and/or the RVRC.

Wherever possible, cameras must not overlook public areas.

Attention is drawn to the guidance on Data Protection given in the CCTV Code of Practice 2008 published by the Information Commissioner's Office (see www.ico.gov.uk).

All CCTV system equipment needs to be fit for purpose and be able to withstand prevailing environmental conditions.

Cameras need to be:

- uniquely identified using a name or label that is displayed at the RVRC and corresponds to the name or label shown on the **protected premises plan** (see also sub-clause 9.1.3 of the new BS)

- checked on configuration to ensure that they are able to focus during the day and at night

4.3.2 Illumination

The detection areas covered by cameras need to be illuminated so that the desired results (see Table 3 above) can be achieved.

Annex D of the new BS gives information about illuminating the field of view of a camera.

Artificial illumination:

- needs to be provided when other sources of illumination are insufficient to achieve the desired results

- needs to be maintained in accordance with manufacturer's instructions

- must not face cameras in such a way as to impede the clarity of images

Infrared illumination on external cameras must not surround the camera lens.

The RVRC operator must report artificial illumination failures and other illumination problems to the owner within 24 hours of their discovery. The owner is then responsible for ensuring that illumination failures and problems are rectified in accordance with the **documented agreement** with the RVRC (see sub-clause 8.5 of the new BS).

The owner is responsible for making periodic checks of the illumination at intervals not exceeding 96 hours.

Clocks used to control illumination need to be adjusted in relation to British Summer Time (BST) changes. The responsibility for making these changes must be agreed contractually between the RVRC, the owner and the company providing maintenance.

4.4 Audio challenge

Audio challenge facilities need to be:

- clearly audible, without undue distortion

- within the area of coverage of the relevant detectors (as indicated in the CCTV system design proposal)

Audio challenges must be initiated by the RVRC and may consist of pre-recorded or live voice operation.

Attention is drawn to the Clean Neighbourhoods and Environment Act 2005. The ACPO policy on police response to security systems requires audio challenge facilities to be included and care needs to be taken to minimize noise disturbance to the environment.

4.5 CCTV system performance and integrity

4.5.1 Activation performance

Activations must initiate within 1 second of an event being detected.

4.5.2 Video transmission system

The video transmission system must be capable of sending continuous video images to the RVRC while the RVRC operator is evaluating images.

4.5.3 Detector omission

There needs to be a **documented agreement** between the owner and the RVRC in accordance with sub-clause 8.1 of the new BS. This agreement needs to include procedures for omitting detectors.

The term "omission" can be compared to the term "inhibit" in BS EN 50131-1:2006+A1:2009. It is a temporary condition such that the detector remains omitted until the CCTV system is unset. Detector omission might, for example, be the consequence of a high number of unwanted activations.

The minimum frequency of activations occurring before a detector is omitted must be agreed in writing as part of the documented agreement between the owner and the RVRC.

Omitted detectors must be restored when a CCTV system is returned to an unset state.

Detector omission must be recorded in a log maintained at the RVRC. As a minimum the log needs to detail:

- time and date that the detector is omitted
- name or ID of the operator
- time and date when the detector is restored, or the duration of the omission

The procedure for omitting detectors must not involve fully unsetting the CCTV system or blocking the connection to the RVRC.

4.5.4 Detector isolation

There needs to be a **documented agreement** between the owner and the RVRC in accordance with sub-clause 8.1 of the new BS. This agreement needs to include procedures for isolating detectors.

The term "isolation" can be compared to the term "isolate" in BS EN 50131-1:2006+A1:2009. It is a condition such that the detector remains isolated until manual action is taken.

Detector isolation might, for example, take account of circumstances in which prolonged periods of activity within the a detector's area of coverage render it necessary to apply isolation or where detector omissions (see 4.5.3) have failed to resolve an excessive number of unwanted activations.

Detector isolation needs to be logged at the RVRC. As a minimum this log needs to include:

- time and date that the detector is isolated
- name or ID of the operator
- time and date when the detector is restored, or the duration of the isolation

The procedure for detector isolation must not include fully unsetting the CCTV system or blocking the connection to the RVRC.

4.5.5 Video integrity

Camera signals must be monitored for video loss.

The RVRC must receive a report of the video loss if the video loss does not restore automatically within 5 seconds.

4.5.6 Tamper detection

Cables attached to detectors must incorporate tamper detection.

The detector enclosure must be equipped with tamper detection to detect:

- opening through its usual method of opening
- removal from mounting
- orientation adjustment
- masking (where applicable to the type of detector)

Tamper detection circuits must be continuously monitored.

When the CCTV system is in the set condition, tamper signals must be reported immediately to the RVRC.

When the CCTV system is in the unset condition, tamper signals must be reported at the RVRC and/or reported at the protected premises by an audible indication.

Housings containing power supplies to detectors must be equipped with tamper detection to detect opening through its usual method of opening.

The camera enclosure must be equipped with tamper detection to detect:

- opening through its usual method of opening
- removal from mounting
- orientation adjustment (wherever practicable)

4.5.7 CCTV control equipment integrity

The CCTV system needs to be configured so that:

- the set or unset status can be determined at the RVRC
- only authorized RVRC operators can program the CCTV system parameters remotely

CCTV control equipment must be:

- in a secure location within the protected premises
- equipped with tamper detection to detect opening of the housing through its usual method of opening
- protected using a secure validation process to prevent unauthorized access
- configured to attempt to restart automatically

  This is likely to require a "watchdog" facility or similar.

Failure to restart must be indicated at:

- the RVRC in the set condition
- the protected premises and/or at the RVRC in the unset condition

A restart signal must be sent to the RVRC if the CCTV control equipment restarts.

The documented agreement between the owner and the RVRC must include the action to be taken:

- following an indication at the RVRC of CCTV control equipment failure to restart
- if the CCTV control equipment restarts on multiple occasions within a 24 hour period

4.5.8 Event logs at the protected premises

An event log needs to be maintained at the protected premises in a consolidated, dated and time retrievable format.

The event log needs to be capable of storing at least 10,000 events.

The event log needs to include the following:

a) Operation of detectors resulting in an incident or an alert or initiating an entry sequence

b) Changes in CCTV system status, for example set, unset, part set

c) Unsuccessful attempts to communicate with the RVRC

d) Successful communication with the RVRC and confirmation that an alarm condition has been reported

e) CCTV system failures and warnings, including restarts after mains power supply failure, low battery and power failure.

4.5.9 Communication integrity

Two data transmission paths need to be provided.

If the primary path fails, the secondary path needs to have the capability to transmit images to the RVRC.

The secondary path needs to be monitored for failure. Failure of the primary or secondary paths needs be reported to, or detected by, the RVRC within 3 minutes.

If wireless technology is the only possible means of communication from the protected premises then having one data transmission path is acceptable. However, the path must be regularly polled and failure reported to, or detected by, the RVRC within 3 minutes.

4.5.10 Retry procedure

There needs to be a retry procedure in case the CCTV system fails to establish a connection with the RVRC.

The CCTV system must attempt to connect to the RVRC a minimum of 6 times to each communications receiver at the RVRC.

There must be a communications receiver at the RVRC for each of the 2 data transmission paths (see 4.5.9 above).

Separate communications receivers may for example be identified by the telephone number which routes to them or by an IP address. This is dependent on the technology in use.

4.5.11 Authorization procedure

There needs to be an authorization procedure before a connection is established between the CCTV systems and the RVRC, but prior to the transmission of data relating to the event.

The procedure, which can be automatic, needs to confirm the identities of equipment at each end of the connection and the authorization level of the operator at the RVRC.

If the authorization procedure cannot be completed, the CCTV system must be configured to abort the current connection attempt and try to reconnect.

The CCTV system must be configured to retry to gain authorization up to a further 9 times within the same connection.

After 10 unsuccessful attempts, the connection must be terminated and re-tried using the alternative connection (see 4.5.10 above).

The authorization procedure must not take more than 10 minutes to complete.

4.5.12 Power supplies

Unless the mains power supply is supplemented with a stand-by generator, an uninterruptible power supply (UPS) must be able to power the CCTV control equipment and communications devices for a minimum of 4 hours after mains power failure.

Where the mains power is supplemented by a stand-by generator, the UPS needs to be capable of providing stand-by power for a minimum of 30 minutes after mains power failure (for example if the stand-by generator does not start).

The following needs to be indicated at the RVRC:

- failure of mains power to the UPS
- low UPS battery warning

Power supplies to detectors need to include a battery capable of supplying power for a minimum of 4 hours.

In the case of a wire-free detector the battery would be the primary power supply.

The date of battery installation needs to be recorded.

Power supplies to detectors need to be monitored for mains, battery, charger and output failure. Failures (faults) need to be reported to the RVRC and/or at the protected premises by an audible indication. The faults need to be reported either individually or through one common output per power supply.

5 INSTALLATION (no equivalent clause in the present BS)

5.1 Wiring, cabling and connections

Wiring and connections must be installed in accordance with BS 7671 and in accordance with good engineering practice. Examples are given in sub-clause 5.1 of the new BS.

Fixtures for components of CCTV systems need to be installed in accordance with manufacturer's instructions.

Components of CCTV systems need to be able to withstand the environmental conditions in which they operate and checked that they fulfill their function.

5.2 Detectors

Detectors must be installed and tested in accordance with the manufacturer's recommendations and in accordance with sub-clause 4.2 of the new BS.

5.3 Camera equipment

Installation of camera equipment must be carried out in accordance with BS EN 50132-7.

6 COMMISSIONING (Clause 5 of the present BS)

6.1 General

Commissioning needs to be carried out before live operation commences.

6.2 Checklist

A checklist which includes the criteria given in **Annex E** needs to be completed.

Any aspects that are not satisfactory need be modified accordingly and re-checked.

The format of the checklist can vary in style from Annex E, but not in content.

6.3 Engineer walk test

The installation engineer must carry out a walk test at the protected premises in association with the RVRC and the owner and/or user.

Commissioning needs to demonstrate that:

- detection areas and fields of view of associated cameras meet the provisions of sub-clause 4.2 and sub-clause 4.3 of the new BS
- sensitivity of detectors meets sub-clause 4.2.3 of the new BS
- image quality generated via available transmission paths meets sub-clause 4.3.1.3 and sub-clause 10.5 of the new BS
- accuracy of recorded data, notably labels used to describe the CCTV system, is correct (see sub-clause 4.3.1.9 of the new BS).

6.4 Reference images

Day and night reference images need to be captured.

Reference images must be stored electronically within the RVRC and must be accessible to the RVRC operator during live event handling for comparison purposes.

For functional (PTZ) cameras, reference images relating to each of the preset positions need to be stored.

The RVRC operator must be compare source images with the relevant stored reference image at least once every 6 months. This can be more frequent if agreed between the owner and the RVRC.

The installer and/or the owner must request and obtain reference images from the RVRC when necessary.

6.5 Night remote check

The RVRC operator must access the CCTV system at night to check that the artificial illumination allows clear images of each independent view to be obtained.

The installer and/or the owner must request and obtain these night images from the RVRC when necessary.

6.6 Environmental soak test

Following the engineer walk test, the RVRC and the installer must evaluate the performance of the CCTV system over a period of not less than 7 days to identify the trends in the protected environment, for example animal runs and shortcuts by pedestrians.

6.7 Faults

The RVRC must notify the owner of any CCTV system configuration faults and the owner must arrange for the faults to be corrected.

Corrective actions must be carried out before the CCTV system is made live.

6.8 CCTV system acceptance test

The RVRC must issue a CCTV system acceptance certificate to the party for whom the RVRC is contracted to provide monitoring.

Prior to issuing the acceptance certificate, the RVRC might require the installer to demonstrate aspects of the system's functionality or performance.

The certificate must confirm the date and time the CCTV system was accepted by the owner or his nominated representative.

6.9 Liaising with the owner/user upon completion of the installation and leaving the protected premises

Instructions for operating keys/codes to the CCTV system must be given to the owner. An owner signature acknowledging receipt of these instructions must be obtained.

The owner/user must be shown the extent of the detection area.

The owner/user must be shown how to operate the CCTV system, including operating detectors. The owner/user must be given other training necessary to operate the CCTV system.

Documentation as called-for by sub-clause 4.1.2 of the new BS must be completed and any documentation for the owner left at the protected premises.

Methods and procedures for communication between the RVRC and the owner/user must be discussed and agreed. These methods and procedures must be fully explained to all involved parties.

Surplus materials from the CCTV system installation must be removed from the protected premises, which must be left in a tidy condition.

7 SETTING/UNSETTING PROCEDURES OF THE CCTV SYSTEM ON THE PROTECTED PREMISES (Clause 6 of the present BS)

7.1 General

The CCTV system must be configured not to cause activations during the setting or unsetting procedures.

The set/unset status must be clearly indicated and be visible from the last place the CCTV system was set or from the entry point to the protected premises.

If a building within the secure area might be occupied when the system is set then a set/unset indicator must be visible from inside the building.

7.2 Setting and unsetting outside secure areas at the protected premises

The setting/unsetting device (for example keypad, digital key reader) must be covered or housed.

The cover/housing of the setting/unsetting device must be provided with tamper detection to detect opening or removal. The tamper detection must be set up so that if the cover/housing is opened it is not possible for the setting/unsetting device to be operated.

The setting and unsetting location must be permanently within the field of view of a camera.

When a digital key is used to set the CCTV system, it must only be able to function from within the field of view of a camera. The setting/unsetting range of the digital key must be a maximum of 10 metres from the point of entry to the protected premises.

7.3 Setting/unsetting inside secure areas

The setting device must be situated inside a secure area.

The detectors covering the exit route must be configured to prevent an activation from being initiated during setting.

Setting must be carried out within an agreed period of time and a timer implemented to monitor this. Setting must be completed either:

1) Manually by the user; or

2) Automatically as a result of the timer expiring.

An indication must be given at the location of setting and unsetting if a detector is in an active state at the time of setting.

The owner needs to provide written procedures detailing the actions to be taken if the setting procedure is attempted when a detector is in an active state.

Annex F gives further guidance on the CCTV system setting procedure in the active state.

7.4 Automatically timed setting and unsetting

When setting or unsetting occurs automatically, the set times need to be after staff are scheduled to leave the protected premises and before staff are scheduled to arrive, respectively. The owner and the RVRC must document and agree this procedure.

Inevitably this means that the protected premises are left insecure for periods of time each day. Therefore the company installing and/or maintaining the CCTV system should advise the owner to consult with their insurer.

7.5 RVRC initiated setting/unsetting

An RVRC must only set or unset the CCTV system, or part of the CCTV system, as the result of a request made to the RVRC by an authorized person.

The RVRC must agree a validation process for this procedure with the owner.

RVRC initiated setting/unsetting must be logged at the RVRC.

8 OWNER RESPONSIBILITIES AND CONSIDERATIONS (Cl. 7 of the present BS)

8.1 General

There needs to be a **documented agreement** between the owner and the RVRC detailing owner responsibilities including:

a) Checking the correct operation of artificial illumination

b) Failure reporting

c) Adjustment of clocks in accordance with the BST time change where they are used to control artificial illumination

d) Responsibility for informing authorized persons at the protected premises of the need to conduct themselves so that activations as a result of their presence are minimized and methods through which this can be achieved

e) Responsibility for investigating and eliminating the causes of a high number of unwanted activations, which have resulted in a detector being omitted or isolated, before it is re-enabled

f) Procedures for detector isolation and detector omission

g) Procedures for multiple restarts of the CCTV control equipment within a 24 hour period

h) Expected responses at the RVRC regarding detector status information

i) Maintenance of the CCTV system in accordance with the manufacturer's recommendations throughout the monitoring service

j) The frequency with which the RVRC operator should compare stored reference images with current images

8.2 Information regarding the protected premises

The owner needs to provide information in accordance with sub-clause 11.1 of the new BS to the RVRC before the CCTV system is commissioned.

If after commissioning the owner proposes changes to the layout of the protected premises, the location of materials or parked vehicles, or changes to site operational procedures, these changes need to be discussed with the maintenance provider and the RVRC.

Agreed changes to the CCTV system need to be implemented and re-commissioned in accordance with Clause 6 of the new BS.

8.3 Response plan to activations

The owner and the RVRC need to have a **documented agreement** in the form of a response plan detailing the action to be taken upon receipt of activations.

The response plan needs to include procedures for the RVRC to follow where there is no identifiable cause for an activation. For example the plan must detail the areas to be viewed

by the RVRC and whether images prior to the activation need to be viewed from some or all of the zones.

8.4 Staff access

The owner needs to:

- document and implement a process to inform staff of ways to minimize unwanted activations when accessing the secure area

- specify the defined entry and exit routes into and out of the protected premises. These need to be communicated to staff and the RVRC

Staff need to be informed that when they plan to enter or exit the protected premises by non-designated routes, the RVRC needs to be notified in advance.

8.5 Failure reporting

The owner needs to have a **documented agreement** with the RVRC detailing the RVRC actions in response to individual CCTV failures such as:

- artificial illumination failure
- video failure
- detector failure
- restart failure
- tamper failure
- communication failure

9 RVRC OPERATOR PROCEDURES (Clause 8 of the present BS)

9.1 General

The RVRC must have access to information from the owner that provides the RVRC with a clear understanding of the layout of the protected premises and the areas to be viewed when a detector initiates an activation.

The RVRC operator needs to have access to plans of the protected premises and stored images of the intended fields of view of all cameras in order to determine if cameras are misaligned. On request, the RVRC must make these images available to the owner and the installer.

The **protected premises plan** needs to show detailed information to enable RVRC operators to describe accurately the nature of incidents as they occur.

The RVRC operator needs to carry out a remote check at night as part of commissioning. On request, the RVRC operator must make these images available to the owner and the installer too.

9.2 Activation delay procedures

The RVRC must agree activation delay procedures with the owner. The procedures need to be documented, and the activation delays recorded.

Where procedures involve a delay between an event being detected and an activation occurring, the RVRC operator needs to have access to a minimum of one image caused by the initiation of the first event.

9.3 Equipment failure

When the RVRC discovers CCTV system configuration faults, the RVRC must notify the owner immediately.

When the RVRC discovers artificial illumination failure, the RVRC must report the failure to the owner within 24 hours of its discovery.

9.4 Omitting detectors

The RVRC must authorize or reject detector omissions as appropriate to the circumstances.

The RVRC operator needs to have a facility (software) at the RVRC to enable manual omission of detectors.

10 **RVRC** (Clause 9 of the present BS)

10.1 Construction and facilities

The construction and facilities of the RVRC must meet BS 5979 Category II.

10.2 Management and operation of the RVRC

The RVRC must be managed and operated in accordance with Annex A of BS 7958:2009.

If there is a loss of monitoring at the RVRC due to a hazard, CCTV systems must be monitored at another RVRC and/or at the protected premises within 15 hours of the loss of monitoring.

10.3 Logging and recording

The RVRC must log or record the following:

a) Date and time of activations

b) Transmitted images

c) Transmitted audio

d) Inbound and outbound telephone calls regarding incidents and owner/user requests, with indexing to any telephone recordings, particularly in relation to owner and user requests

e) Reports of incidents and RVRC operator actions in response

f) Detector omissions

10.4 RVRC support

The RVRC needs to provide:

a) A sufficient number of RVRC operator terminals to meet the expected peak activation levels at any time

b) A minimum of two operators with at least one operator present at their workstation at any time

c) CCTV control equipment involved in the receipt, display or onward transmission of video or audio, including power supplies

d) A standby facility or procedure that can be brought into use either automatically or manually by an RVRC operator within 1 hour from the moment they become aware of the fault

e) Adequate replacement equipment for receiving, processing and displaying images that is common to more than one connected system

f) Arrangements for a trained engineer to attend an RVRC, when required, within 4 hours of a fault being detected

g) Facilities to queue activations when all operators are occupied

h) A sufficient number of incoming communication channels/paths and enough receiving equipment to cope with the maximum demand anticipated

10.5 Picture quality

Picture quality must be at least sufficient to enable an RVRC operator, with normal or corrected vision, to determine the nature and detail of a viewed event in relation to the desired result (for example detection, observation, recognition, identification).

10.6 Transmitted audio

Transmitted audio must be clearly audible to the RVRC operator without undue distortion.

11 RVRC PROCEDURES AND DOCUMENTATION (Clause 10 of the present BS)

11.1 Protected premises documentation prior to commissioning of a CCTV system

The RVRC needs to obtain the following information at least 24 hours before the CCTV system is commissioned:

a) Protected premises address

b) Installer details

c) Protected premises plan

d) Operational schedule (set/unset times and so on)

e) Response plan

f) User contact details/emergency service provider (ESP) details

g) Associated intruder alarm system information (third party ARC, protected premises details and so on)

h) Inventory of CCTV equipment installed

i) Fault reporting procedure

11.2 Non-image records and event logs at the RVRC

The RVRC needs to maintain non-image records and event logs for a minimum of 6 months including the following:

a) The time of transmission from a protected premises

b) The time and date that an RVRC operator logs onto a workstation and the identity of the RVRC operator

c) The RVRC operator actions that result from an incident reported from the protected premises

d) The time at which the RVRC operator closes down the session, in addition to any cause code recorded

e) CCTV system failures received from remote sites

f) CCTV system failures within the receiving equipment and workstations

g) Important owner instructions, the time and date they are received by the RVRC and the time(s) and date(s) that they are actioned by the RVRC

h) The times at which an RVRC operator initiates and closes a routine patrol of the protected premises

11.3 Storage of images received

The RVRC must store images electronically on a medium such as a hard drive.

The RVRC must have documented procedures for indexing and accessing images stored from a particular incident.

The RVRC must agree the retention period(s) for the images with the owner.

11.4 Images for evidential purposes

Where data and/or images are stored digitally and may be required as evidence for a crime, the digital CCTV recording system (DCRS) must meet BS 8495.

BS 8495:2007 is the British Standard Code of Practice for digital CCTV recording systems for the purpose of image export to be used as evidence.

The RVRC and the installer should determine with the owner whether images will be required as evidence for a crime. If so, the RVRC and the installer should establish and agree whether compliance with BS 8495 is to be achieved at the RVRC or on site (for example through the use on site of a suitable DCRS meeting BS 8495).

11.5 RVRC operator actions

RVRC operators must follow documented procedures when handling activations. They must be trained in procedures for producing evidential images when required to do so.

11.6 Image quality check

The RVRC must issue a fixed format notice to the owner if the quality of an image is identified as being too poor to allow the RVRC operator to determine the nature and detail of a viewed event. The notice must advise the nature of the problem and request that the owner takes remedial action.

11.7 Critical data omissions

The RVRC must issue a fixed format notice to the owner if critical data required to complete the response plan is unavailable or inaccurate (for example a user who is no longer valid). The notice must request that the owner supplies the missing data.

12 ACTIVATION MANAGEMENT (Clause 11 of the present BS)

12.1 Classification of activations

The RVRC must classify all activations. As a minimum, the classification system must distinguish between alerts and incidents.

The activity for each detector/camera combination must be recorded and classified according to the cause of the activation so that the CCTV system can be managed effectively with regard to the CCTV system faults or deficiencies.

12.2 Multiple unwanted activations

When multiple activations occur, the RVRC must carry out the response plan. Where necessary, detectors must be omitted or isolated as appropriate.

13 SERVICE LEVELS (Clause 12 of the present BS)

13.1 General

The RVRC must conform to BS 5979.

All of the recommendations given with BS 5979 apply apart from those that are not applicable to the monitoring of detector activated CCTV systems.

13.2 Activation response time

The RVRC must commence evaluation of images within:

- 90 seconds of their arrival for 80% of initial activations
- 180 seconds of their arrival for 98.5% of initial activations

13.3 Local CCTV system fault reporting

The RVRC must notify the owner of faults within 60 minutes of their discovery unless a different time limit has been agreed in writing between the RVRC and the owner.

13.4 Incident reporting

The RVRC must report incidents that occur during the period in which the CCTV system is set in writing to the owner's nominated address (for example fax number or email) within 12 hours.

14 GENERAL MAINTENANCE AND PERSONNEL SCREENING

14.1 CCTV system maintenance

14.1.1 Maintenance agreement and routine visits

A documented agreement for maintenance must be in place before the CCTV system is accepted for monitoring. There must be at least two routine maintenance visits per year.

The RVRC can carry out one of the annual maintenance visits remotely.

The owner and the maintenance provider need to agree documented criteria for the maintenance or repair of the CCTV system engineer and they must communicate these criteria to the RVRC.

Routine maintenance must be scheduled to take place during the sixth calendar month following the first month in which the CCTV system is commissioned, and once again during the twelfth month after commissioning. Further scheduling of maintenance visits must be for the eighteenth and twenty-fourth months after the month of commissioning, and so on.

Routine maintenance visits that occur during the month before or the month after the scheduled month do not affect the routine maintenance schedule.

14.1.2 Maintenance engineer actions

At each routine visit, the maintenance engineer must consider whether any environmental factors have changed to adversely affect the operation of the CCTV system. If so, the engineer needs to take remedial action.

During each routine visit, the maintenance engineer needs to check that the artificial illumination present at night allows clear images to be obtained of each intended view.

When changes to the CCTV system and configuration of transmission equipment are required, the engineer must inform the RVRC and request the changes. The RVRC must always control such changes in order to avoid a breach of security.

The maintenance engineer must inform the RVRC once a repair has been completed.

14.1.3 RVRC maintenance actions

The RVRC must:

- check the parts of the CCTV system that have been repaired to confirm that they are fully operational
- advise the owner and/or maintenance provider immediately if the CCTV system is not fully operational
- review CCTV system specification documentation and operational logs during routine maintenance visits to identify any failures or deterioration in the CCTV system operation
- carry out maintenance visits in conjunction with the maintenance engineer

Once completed, the RVRC must check and approve any changes and modifications that have been made.

14.2 Personnel screening

Individuals at the RVRC and/or at the installing and/or maintaining company who are in relevant employment must be security screened in accordance with BS 7858.

Attention is drawn to the requirements for licensing under the Private Security Industry Act 2005 (see www.sia.homeoffice.gov.uk).

ANNEX A (informative)

This annex gives diagrams for the correct positioning of detectors.

ANNEX B (normative)

This annex identifies the factors affecting the design requirements for a CCTV system that need to be considered.

ANNEX C (informative)

This annex gives information about the types of technology used in detection equipment.

ANNEX D (informative)

This annex covers illumination of the field of view of the camera.

ANNEX E (normative)

This annex gives checklist criteria for the commissioning of a CCTV system that must be followed. The items in the checklist are as follows:

Installation and configuration

- Has the CCTV system been installed and configured in accordance with the CCTV system design proposal (and any deviations agreed in writing with the owner)?

- Does the CCTV system conform to BS EN 50132-7?
- Are cables clearly labelled at interconnections?
- Has the resistance of detection interconnections been recorded or the continuity of bus-wired interconnections been checked?
- Has a unique password been assigned to protect the CCTV system from unauthorized remote access?
- Have the transmission paths been tested for the correct transmission of signals to the RVRC?
- Has it been checked that the RVRC are receiving these signals?
- Have cameras been checked to focus both at night and during the day?
- Have night cameras been checked to switch to mono in line with the manufacturer's specification?
- Have functional camera presets and detector outputs been recorded?

Detectors

- Has every detector and output device through to the CCTV control equipment been checked and found to function correctly?
- Have all detection areas been checked to fall within the fields of view of the associated cameras?
- Has the position of the detectors been checked so that they are not adversely affected by the strength and position of the sun (e.g. at sunrise/sunset)?
- Has each detector been checked to connect to a single input?
- Has the operation of tamper devices been checked?
- Has the area or volume of coverage of movement/vibration detectors including alignment of active beam detectors and anti-masking or range reduction facilities (as appropriate) been checked?
- Have the CCTV cameras and detectors on entry/exit routes been checked for correct operation and the entry/exit timer recorded?
- Have the detection devices of the set CCTV system been operated to check that the resulting alarm conditions are notified correctly?

Illumination

- Have camera field of views been checked to be correctly illuminated during both day and night conditions?

Audio

- Have the audible devices been checked (including audio challenge) for correct operation and audibility?

Power supply

- Has a record been made of the date of battery installation?
- Has the current required by all power supplies used in the CCTV system in both set (but inactive) and alarm states been logged?
- Has the mains supply been removed and the battery voltage used by the equipment verified to conform to sub-clause 4.5.12 of the new BS?
- Is the CCTV system able to function to its expected level of operation without the mains supply?
- Is there adequate standby battery capacity to conform to sub-clause 4.5.12.4 of the new BS?
- Are the mains supply fuses of the correct rating?

Owner considerations

- Has an owner signature been obtained to acknowledge receipt of and instructions for operating keys/codes to the CCTV system?
- Has the owner been shown the extent of the detection area and how to operate the CCTV system, including operating detectors?
- Has all documentation been completed and owner documentation left at the protected premises?
- Have communication procedures been discussed and agreed with the RVRC and explained to the owner?
- Has the owner and/or user been given training on the use of the CCTV system(s)?
- Have surplus materials from the CCTV system installation been removed from the protected premises and has it been left in a tidy condition?

ANNEX F (informative)

This annex covers the setting procedure with a detector in the active state.