

**Extract taken from the
Code of Practice for the Housing and
Care of Animals Bred, Supplied or
Used for Scientific Purposes**

Dogs, Cats and Ferrets



December 2014



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Original Code of Practice for the Housing and Care of Animals Bred, Supplied or Used for Scientific Purposes

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Executive Summary

This Code of Practice contains standards for the care and accommodation of animals at licensed breeder, supplier and user establishments in accordance with section 21 of the Animals (Scientific Procedures) Act 1986 as amended in 2012 (“ASPA”), which requires the Secretary of State to “issue codes of practice as to the care of protected animals and their use for regulated procedures”.

The purpose of this Code of Practice is to ensure that the design, construction and function of the installations and equipment of licensed establishments – along with their staffing, care and practices – allow procedures to be carried out as effectively as possible.

The key outcomes driven by this Code of Practice are:

- to promote good animal welfare through the provision of consistent, high quality care and accommodation;
- to support the generation of high quality, reliable scientific results through the reduction of environmental variables;
- to implement the principles of the 3Rs through using the minimum number of animals and causing the minimum degree of pain, suffering, distress or lasting harm.

It contains three sections covering both general and species specific indications:

- **Section 1** describes the legal minimum standards applicable now.
- **Section 2** describes the legal minimum standards applicable from 1 January 2017.
- **Section 3** provides non-mandatory advice covering a broader range of subjects than Sections 1 and 2.

Section 3 of this Code of Practice is based on Commission Recommendation 2007/526/EC (itself based on Appendix A to the European Convention for the protection of vertebrate animals used for experimental and other scientific purposes), which remains in force and requires that “member states shall pay regard to the guidelines set out in the Annex to the Recommendation”.

Section 3 aims to promote a shared understanding between establishments and Home Office Inspectors of the manner in which the requirements of Sections 1 and 2 might be met. It will assist establishments to meet the requirements of Sections 1 and 2, as well as encourage the application of up-to-date evidence-based 3Rs approaches to accommodation and care. With advances in welfare and science, leading practice evolves. Additional advice may therefore be published separately by the Home Office over time, and Section 3 will be formally revised, as appropriate.

The advice set out in Section 3 is not prescriptive and need not provide the only means of compliance with the mandatory standards in Sections 1 and 2.

Establishments should seek to continually improve their standards of care and accommodation in line with the principles of the 3Rs, striving to adopt higher standards where practicable and applicable. Section 3 is neither intended as a training manual nor as a substitute for proper training, experience and expert advice.

Animals in Science Regulation Unit, December 2014.

Introduction

1 Background

This Code of Practice (“CoP”) is issued under section 21 of the Animals (Scientific Procedures) Act 1986 as amended in 2012 (“ASPA”), which requires the Secretary of State to “issue codes of practice as to the care of protected animals and their use for regulated procedures”.

Article 22 of the Directive 2010/63/EU of the European Parliament and of the Council (22 September 2010) on the protection of animals used for scientific purposes requires that Member States ensure that “all establishments of a breeder, supplier or user have installations and equipment suited to the species of animals housed and, where procedures are carried out, to the performance of the procedures.”

Article 22 also requires that “Member States shall ensure that the relevant requirements as set out in Annex III are complied with.”

This CoP fulfils these requirements by meeting Annex III standards, while retaining higher UK CoP standards in force prior to 2010.^{1,2} It sets out changes to legal minimum standards applicable from 1 January 2017.³ Section 3 provides additional advice derived from Commission Recommendation 2007/526/EC⁴ and other expert sources on how the requirements of Annex III might be met. This advisory section also encourages licensed establishments to continually improve their standards of care and accommodation in line with the principles of the 3Rs (replacement, reduction and refinement), striving to adopt higher standards where practicable and applicable. The Animals in Science Committee has been consulted in the drafting of this CoP.

This CoP primarily relates to the *care and accommodation* of animals. The Guidance on the Operation of the Animals (Scientific Procedures) Act 1986 (“the Guidance”) relates to their *use* in scientific procedures and how to comply with the legislation.

2 Why does this CoP exist?

The purpose of the CoP is to ensure that the design, construction and method of functioning of the installations and equipment of licensed establishments – along with their staffing, care and practices – allow procedures to be carried out as effectively as possible, in order to obtain reliable results using the minimum number of animals and causing the minimum degree of pain, suffering, distress or lasting harm.

Some procedures are conducted under field conditions on free-living, self-supporting, wild animals, but such procedures are relatively few in number. The great majority of animals used in procedures are kept in facilities ranging from outdoor pastures to cages for small animals in an animal house. There are often highly conflicting interests between the scientific requirements and the needs of the animal. In this conflict, the basic physiological and ethological needs of the animals (freedom of movement, social contact, meaningful activity, nutrition, water) should be restricted *only for the minimum necessary period of time and degree*. Such restrictions should be reviewed by scientists, animal technicians and those competent persons charged with advisory duties in relation to the well-being of the animals before procedures are undertaken, to ensure that the extent of the compromise to animal welfare is minimised to a level consistent with the scientific objectives of the study.

1 Code of Practice for the Housing and Care of animals in Designated Breeding and Supplying Establishments. Pursuant to Animals (Scientific Procedures) Act 1986, 24 January 1995.

2 Code of Practice for the Housing and Care of animals used in scientific procedures. Pursuant to Animals (Scientific Procedures) Act 1986, 7 February 1989.

3 As set out in Annex III of the Directive 2010/63/EU of the European Parliament and of the Council (22 September 2010) on the protection of animals used for scientific purposes.

4 Commission Recommendation (18 June 2007) on guidelines for the accommodation and care of animals used for experimental and other scientific purposes (2007/526/EC).

3 To whom and where does this CoP apply?

If an establishment is licensed for breeding, supplying and/or using animals under section 2C of ASPA it must abide by the mandatory standards within Sections 1 and 2 of this CoP for all protected animals⁵ held at the establishment that will be, are being or have been used for a licensed purpose.⁶

In Great Britain this CoP is administered by the Home Office. In Northern Ireland it is administered by the Department of Health and Social Services. Where the Code refers to the “Secretary of State” or “the Home Office” it means, in Northern Ireland, the Department of Health and Social Services.

4 When does the CoP come into force?

The standards in Section 1 of this CoP came into force through the amended legislation on 1 January 2013. The standards in Section 2 will come into force from 1 January 2017 and will supersede Section 1.

5 What does this CoP contain?

This CoP contains standards for the care and accommodation of animals at licensed breeder, supplier and user establishments.

Section 1 describes the legal minimum standards applicable until 31 December 2016.

Section 2 describes the legal minimum standards applicable from 1 January 2017.

Section 3 provides advice covering a broader range of subjects than Sections 1 and 2. This section *does not* set out legal requirements.

Within each section is:

- A chapter containing information **relevant to all species**.
- **Species-specific** chapters containing information relevant only to those species.

“Care and accommodation”, used in the context of animals in science, covers all aspects of the relationship between animals and man. Its substance is the sum of material and non-material resources provided by man to obtain and maintain an animal in a physical and mental state where it suffers least and which promotes good science. It starts from the moment the animal is intended to be used in procedures, including breeding or keeping for that purpose, and continues until it is humanely killed (or rehomed or set free, as appropriate) after the completion of the procedure(s).

6 From where does the content originate?

6.1 Section 1

Section 1 standards are taken from Annex III of the European Directive on the protection of animals used for scientific purposes,⁷ but retains higher UK CoP standards in force prior to 2010,^{8,9} in accordance with Article 2 of the Directive.

Some of the Annex III standards do not come into force until 1 January 2017. Where this is the case, standards from the previous UK Codes of Practice are quoted, for use until 1 January 2017. Standards that are changing are clearly labelled and cross referenced. The post-2017 standards are found in Section 2.

⁵ A “protected animal” means any living vertebrate other than man and any living cephalopod.

⁶ The **applying of regulated procedures** to protected animals; the **breeding** of animals listed in schedule 2 of ASPA with a view to their use in regulated procedures or the use of their tissues or organs for scientific purposes, or the breeding of protected animals (other than animals listed in schedule 2 of ASPA) primarily for these purposes; or the keeping of relevant protected animals which have been bred elsewhere and are to be **supplied** with a view to their use elsewhere in regulated procedures or the use elsewhere of their tissues or organs for scientific purposes.

⁷ Annex III of the Directive 2010/63/EU of the European Parliament and of the Council (22 September 2010) on the protection of animals used for scientific purposes.

⁸ Code of Practice for the Housing and Care of animals in Designated Breeding and Supplying Establishments. Pursuant to Animals (Scientific Procedures) Act 1986, 24 January 1995.

⁹ Code of Practice for the Housing and Care of animals used in scientific procedures. Pursuant to Animals (Scientific Procedures) Act 1986, 7 February 1989.

On 1 January 2017 Section 1 will no longer apply.

6.2 Section 2

These standards are taken from Annex III of the European Directive on the protection of animals used for scientific purposes,¹⁰ but retain higher UK CoP standards in force prior to 2010^{11,12} in accordance with Article 2 of the Directive.

6.2.1 What are the changes?

Most of the standards for accommodation of animals are changed. There are some completely new standards, for example covering additional species.

Where standards have *not* changed, they are restated here, so that this section provides a complete guide to standards post-2017.

6.3 Section 3

The advice given in Section 3 is based on Commission Recommendation 2007/526/EC¹³ (“the Recommendation”), which has been adapted to ensure the information provided is appropriate (specific and clear) in the context of the UK. Supplemental information has also been taken from the EU Expert Working Groups who advised on revision of Appendix A of convention ETS 123, from UK CoP standards in force prior to 2010^{14,15} and other expert sources. The revised Appendix A was incorporated into the Recommendation in June 2007.

The Recommendation is still in force and part of the EU legislative framework. It was not repealed by Directive 2010/63/EU (“the Directive”) and Recital 5 of the Directive makes a specific reference to the Recommendation. The Recommendation provides more in-depth understanding of the housing and care obligations that are part of the Directive, and helps to assist all involved in meeting the requirements of Annex III. The Recommendation constitutes complementary guidance and is not binding under EU law.

Similarly, Section 3 of this CoP provides advice on how the requirements of Annex III might be met. This advisory section also encourages licensed establishments to continually improve their standards of care and accommodation in line with the principles of the 3Rs, striving to achieve better welfare outcomes where practicable and applicable.

7 How to use this CoP

Chapter 1: Standards applicable to all animals can be found in each section and lays out standards applicable to all species and the general principles to which you are expected to adhere (Sections 1 and 2) or consider (Section 3). You should also consult the relevant *species-specific chapters* of Sections 1 or 2 in order to ascertain what is expected of your establishment.

You should use the advice in Section 3:

- to help you to understand how the standards in Sections 1 and 2 might be met;
- to guide you where there are no standards applicable in Sections 1 or 2 for your species or situation;
- to help you improve your facilities or working practices, where applicable.

10 Annex III of the Directive 2010/63/EU of the European Parliament and of the Council (22 September 2010) on the protection of animals used for scientific purposes.

11 Code of Practice for the Housing and Care of animals in Designated Breeding and Supplying Establishments. Pursuant to Animals (Scientific Procedures) Act 1986, 24 January 1995.

12 Code of Practice for the Housing and Care of animals used in scientific procedures. Pursuant to Animals (Scientific Procedures) Act 1986, 7 February 1989.

13 Commission Recommendation (18 June 2007) on guidelines for the accommodation and care of animals used for experimental and other scientific purposes (2007/526/EC).

14 Code of Practice for the Housing and Care of animals in Designated Breeding and Supplying Establishments. Pursuant to Animals (Scientific Procedures) Act 1986, 24 January 1995.

15 Code of Practice for the Housing and Care of animals used in scientific procedures. Pursuant to Animals (Scientific Procedures) Act 1986, 7 February 1989.

Each section is colour coded to help clarify whether it is mandatory immediately, mandatory after 1 January 2017 or constitutes advice.

The CoP may specify different standards depending on whether the animals are being bred, supplied, used or kept in stock for scientific purposes. The following definitions apply:¹⁶

Breeding animals	Protected animals ¹⁷ in a breeding programme, or being kept for use in a breeding programme, where they and/or their offspring are subsequently intended for use in a regulated procedure, or their tissues or organs are intended for use for scientific purposes. This includes all females that have been mated, and stud males. It includes the breeding of genetically altered animals and harmful mutants authorised in project licences. ¹⁸
Supply animals	Protected animals kept or which have been kept for the purpose of being supplied for use in a regulated procedure, or for the use of their tissues or organs for scientific purposes.
Use animals	Protected animals being or which have been used in a regulated procedure, or which are being or have been kept for use in a regulated procedure, other than where the regulated procedure is the breeding of genetically altered animals or harmful mutants.

Should behaviour or breeding problems occur or should you require further information, you should seek the advice of animal care staff, the Named Veterinary Surgeon, your local Inspector and/or other specialists.

Definitions of terms can be found in the glossary.

8 The CoP's legal status

8.1 Mandatory and advisory sections

Sections 1 and 2 provide the mandatory legal minimum standards required now and from 1 January 2017 respectively. Section 3 provides advice.

Section 3 does *not* contradict any standard provided in Sections 1 or 2. It *does*, however, provide advice in areas that are not covered in Sections 1 or 2, advice for protected species absent from those sections, and additional information about how Section 1 or 2 standards might be met.

8.2 Non-compliance with Sections 1 and 2

Section 21 (4) of ASPA states:

“A failure on the part of any person to comply with any provision of a code... shall not of itself render that person liable to criminal or civil proceedings but ... any such code shall be admissible in evidence in any such proceedings... and if any of its provisions appears to the court ... to be relevant ... it shall be taken into account [in determining the outcome of the case]”.

In addition, standard condition 4 of Establishment Licences describes the requirement to provide adequate and appropriate standards of care and accommodation. Those standards will be taken from this CoP, and therefore a failure to meet the mandatory (Section 1 or 2) standards of the CoP may constitute a breach of standard condition 4 of the Establishment Licence.

If an establishment fails to meet the minimum legal standards as described in Sections 1 and 2 of this CoP it is likely to be in breach of standard condition 4 of the Establishment Licence.

In addition, any breach of Sections 1 and 2 of this CoP will be presented as evidence in any relevant criminal or civil case or action for breach of licence conditions taken by the Secretary of State or others.

¹⁶ Animals (Scientific Procedures) Act 1986 as amended in 2012, sections 2B and 15A (11).

¹⁷ As defined in the Animals (Scientific Procedures) Act 1986 as amended in 2012, section 2B.

¹⁸ When breeding genetically altered animals, an assessment must be made of any potential differences to the requirements for care and accommodation brought about by the genetic alteration. Where additional requirements are identified they must be provided, unless withholding them is authorised in the project licence.

8.3 Section 3 advice

The purpose of Section 3 is to promote a shared understanding between Establishments and Home Office Inspectors of the manner in which the requirements of Sections 1 and 2 might be met. In addition, the advice seeks to encourage establishments to promulgate high quality animal welfare and high quality science, which may go beyond the minimum requirements, where applicable.

Home Office Inspectors may utilise the advice in Section 3 to discuss and encourage best practice. With advances in welfare and science, leading practice evolves. Establishments should seek to continually improve their standards of care and accommodation in line with the principles of the 3Rs, striving to achieve better welfare outcomes, where practicable and applicable.

Whilst there is no legal requirement to make provisions above the minima in Sections 1 and 2, demonstration that an establishment has given due consideration to the advice in Section 3 or other relevant, evidenced-based advice would provide *positive* evidence of a good culture of care at that establishment. Other indicators, not related to this CoP, are also important in demonstrating the culture of care at an establishment.

Where an Inspector has significant concerns about animal welfare and/or the quality of science at a particular establishment, they may utilise the advice in Section 3, as well as other sources of expert opinion, to assist in identifying how welfare or scientific outcomes may be improved.

8.4 Specifying deviations from CoP Section 1 or 2 standards

8.4.1 Specifying deviations from Sections 1 or 2

Where deviation from standards laid down in Sections 1 or 2 of this CoP is required for **scientific** reasons, authorisation for the deviation must be specified in the Project or Establishment Licence after local ethical review and on approval by the Secretary of State. Normally authorisation will only be given with specific justification.

Where deviation from standards laid down in Sections 1 or 2 of this CoP is required temporarily as a part of **treatment** the animal is receiving as recognised veterinary practice under the care of a veterinary surgeon, for example confinement in order to enforce rest, such a deviation will fall under the Veterinary Surgeons Act and will not require authorisation in the Project or Establishment Licence.

There are some circumstances when deviation from standards laid down in Sections 1 or 2 of this CoP is required for a short period on isolated occasions for **animal health or welfare** reasons. For example, temporary single housing of a social species may be required for a short time after weaning if there is a single mouse in a litter, prior to the animal being issued on procedure. Such deviations must be for the minimum period necessary, and may be specified by the agreement of the appropriate named persons (normally NVS and NACWO). Such agreements should be documented, and records made available to the Home Office Inspector on request.

Should the event become regular and/or predictable, for example because it becomes apparent that a certain strain of mouse has a high frequency of producing litters with single offspring, local authorisation may no longer be appropriate and Project or Establishment Licence authorisation may be required. However, in accordance with ASPA section 2(8) practices undertaken for the purposes of recognised animal husbandry¹⁹ will not require licence authority and may be continued with the ongoing agreement of the appropriate named persons.

If there is any doubt as to what type of authorisation is appropriate you should seek the advice of your Home Office Inspector.

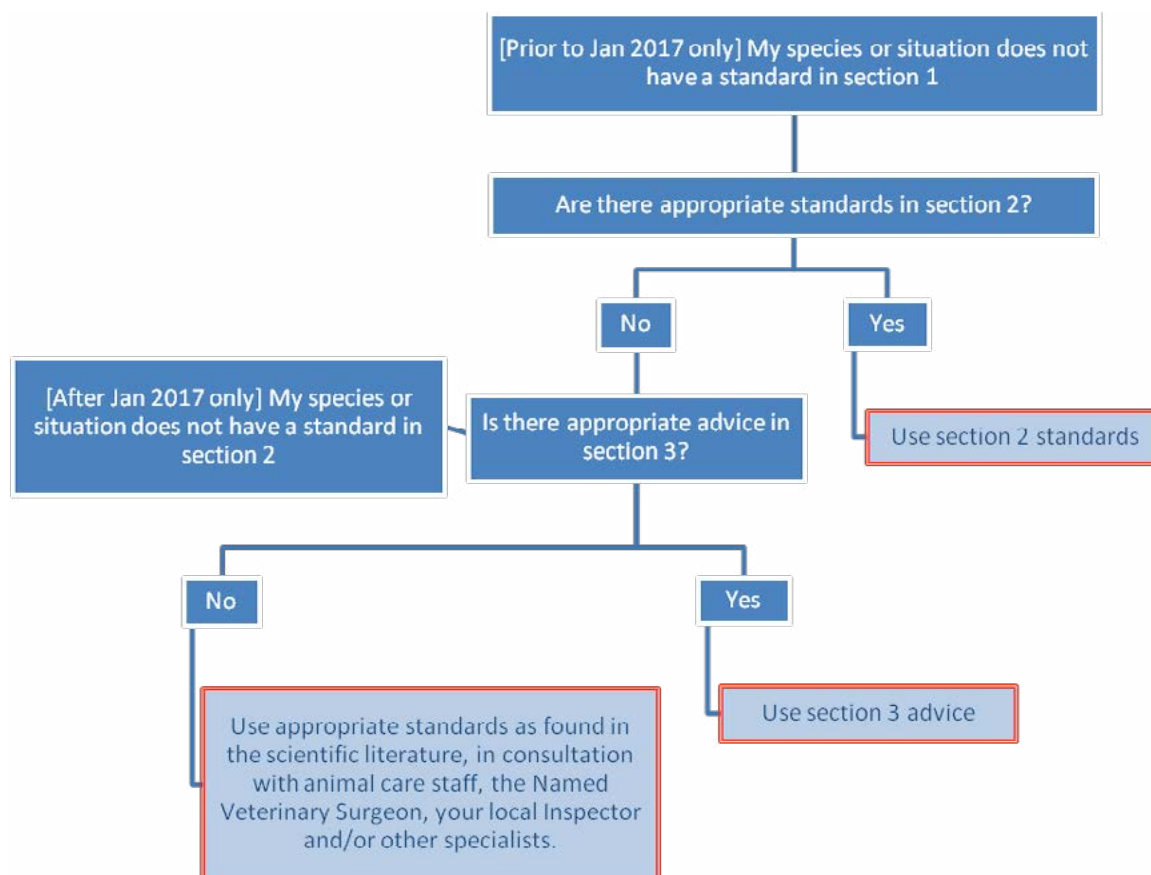
¹⁹ "Recognised animal husbandry" refers to techniques currently widely practised in the UK. Such techniques will be found in literature such as the Defra Codes of Recommendation for the Welfare of Livestock, the RSPCA Research Animals Team's Guidance Notes (<http://science.rspca.org.uk/sciencegroup/researchanimals/ethicalreview/functionstasks/housingandcare>) and the UFAW Handbook (Hubrecht, R. & Kirkwood, J. [eds] (2010) 'The UFAW Handbook on the Care and Management of Laboratory and Other Research Animals' 8th edn. Wiley-Blackwell, Oxford).

8.4.2 Specific circumstances within agricultural research

During agricultural research, when the aim of the project requires that the animals are kept under similar conditions to those under which commercial farm animals are kept, the keeping of the animals shall comply at least with the standards laid down in Council Directives 91/629/EEC, 91/630/EEC, 98/58/EC, 1999/74/EC and 2007/43/EC.²⁰ Authority to use Council Directive standards in place of these ASPA CoP standards should be specified in the Project or Establishment Licence after local ethical review and on approval by the Secretary of State.

8.5 Where standards do not exist in this CoP – the Standards Cascade

This CoP does not necessarily provide standards for all species and circumstances. Where standards are not given in Section 1 (for example for a particular species or particular circumstance) there is no legal minimum standard laid down. In this case establishments will be expected to adopt any relevant standards described in Section 2. Where no relevant standard is presented in Section 2, establishments will be expected to consider relevant advice in Section 3. Where no relevant advice is presented in Section 3, establishments will be expected to apply appropriate standards as found in the scientific literature, in consultation with animal care staff, the Named Veterinary Surgeon, your AWERB, your local Inspector and/or other specialists. From January 2017 Section 1 can be disregarded, and this cascade operates only for Sections 2 and 3. For the purposes of compliance, where this cascade has been used the standards within the red double-framed boxes will be treated as advice.



²⁰ Council Directive 91/629/EEC of 19 November 1991 laying down minimum standards for the protection of calves (OJ L 340, 11.12.1991, p. 28).
 Council Directive 91/630/EEC of 19 November 1991 laying down minimum standards for the protection of pigs (OJ L 340, 11.12.1991, p. 33).
 Council Directive 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes (OJ L 221, 8.8.1998, p. 23).
 Council Directive 1999/74/EC of 19 July 1999 laying down minimum standards for the protection of laying hens (OJ L 203, 3.8.1999, p. 53).
 Council Directive 2007/43/EC of 28 June 2007 laying down minimum rules for the protection of chickens kept for meat production (OJ L 182, 12.7.2007, p. 19).

9 Inspections

Inspectors use the standards within this CoP to assess whether the care and accommodation provided by the establishment meet the requirements of ASPA and standard condition 4 of the Establishment Licence.

Failure to meet the legal minimum standards set out in Sections 1 and 2 is *likely* to result in non-compliance action.

The inspector's focus with Section 3 will be to advise you how you might best use the advice within it. As none of the advice in Section 3 is mandatory, you cannot be found in breach of Section 3.

Information within Section 3 may also be used as a trigger for discussions during the assessment of project licence applications. For example, should an investigator wish to hold animals at an unusually low or high temperature (outside the range advised in this CoP), this should be highlighted and discussed within the application. Similarly, barren environments devoid of enrichment, unusual flooring or bedding materials, social isolation, atypical feeding regimes and other such factors will require project licence authority if they may cause pain, suffering, distress or lasting harm, and the specific circumstances and justifications should be discussed with your Inspector.

For more information on inspections and Inspectors, please read 'Guidance on the Operation of ASPA' available on the 'Research and Testing Using Animals' website.

10 How the CoP will be reviewed and updated

As understanding of how best to care for animals evolves, the recommendations contained in this CoP may require updating. The Secretary of State will keep this CoP under review and will issue amendments as necessary.

If you would like to contribute to the next version, please send your comments to ASRUBusinessSupport@HomeOffice.gsi.gov.uk.

Glossary

Animals in Science Committee (ASC)	The independent non-departmental public body set up under ASPA sections 19 and 20. It is responsible for providing impartial, balanced and objective advice to the Home Office on issues relating to ASPA.
AWERB	Animal Welfare and Ethical Review Body. Every licensed establishment is required by ASPA to have an AWERB. Its membership and activities are defined by ASPA.
Body condition	See condition scoring.
Brooder lamp	A heat lamp with a controllable or known temperature output.
Condition scoring	An objective system of evaluating an animal's body condition (amount of stored fat) and assigning a numeric value.
Conspecifics	Belonging to the same biological species.
Cubicle	Individual cow bedding spaces separated by half height and half length partitions. Usually located in loose housing cow accommodation in which the cow is free to wander at will.
Enclosure	The primary accommodation in which the animal is confined, for example a cage, pen, run or stall. It is the extent to which the enclosed animal can freely range.
Environmental enrichment	The practice of providing animals under managed care with stimuli such as natural and artificial objects which promote the expression of species-appropriate behavioural and mental activities.
Establishment	A place holding a licence that has been granted under section 2C of ASPA.
Establishment Licence (PEL)	A licence granted to a place under section 2C of ASPA.
Fill and dump system	A water cleaning system where there is no through flow of water. A proportion of water volume is extracted and replaced at regular intervals in order to keep the aquatic environment healthy. The volume and frequency of the exchange depends on the species requirements.
Filter top cage	A cage box with a wire or plastic structure on the top of the cage with filter element. These cages are housed in standard racks.
Floor area	The footprint of the enclosure. Whether or not shelving may contribute to floor area varies according to the species being kept and the space below the shelf. For more information, please see Section 3 Chapter 1 Advice applicable to all animals, paragraph 4.6.
Flow system	A continuous matched top up and outflow of water in and out of tanks in order to keep the aquatic environment healthy.
Group housed	Housed as two or more animals within the same enclosure.
Harem (guinea pig)	A group of guinea pigs – typically one male with one to ten females.
Headweaving	A stereotypical behaviour where the animal repeatedly moves its head from side to side, while keeping its body relatively still.
Health status	The presence or absence of infectious or non-infectious disease or abnormality in an individual or population.

Height	The vertical distance between the enclosure floor and the top of the enclosure. This height should apply over more than 50% of the minimum enclosure floor area prior to the addition of enrichment devices.
Holding room	Secondary accommodation in which the animal enclosure(s) may be located, as specified in the schedule of premises of the Establishment Licence.
Inspector	An inspector in the Animals in Science Regulation Unit appointed under ASPA section 18.
Isolator	A device that creates a barrier in order to maintain an internal condition (e.g. sterile or aseptic).
IVC	Individually ventilated cage. A sealed cage unit attached to a dedicated air-handling system.
Mismothering	Failure of maternal behaviour that places the offspring at increased risk of suffering and/or harm.
NACWO	Named Animal Care and Welfare Officer.
Named Veterinary Surgeon (NVS)	A member of the Royal College of Veterinary Surgeons, specified by the Establishment, to advise on the health, welfare and treatment of the animals.
Open-water systems	Enclosures within a larger body of water, for example a pond, lake, river or the sea.
Pen	An area enclosed, for example, by walls, bars or meshed wire in which one or more animals are kept. Depending on the size of the pen and the stocking density, the freedom of movement of the animals is usually less restricted than in a cage.
Pet animal	An animal kept by a human as a source of companionship or pleasure.
POLE	Place Other than a Licensed Establishment.
Post-weaned stock	Young animals that have been weaned from the dam being kept for a licensed purpose.
Procedure	A licensed procedure causes pain, suffering, distress or lasting harm greater than or equal to the insertion of a hypodermic needle in accordance with good veterinary practice.
Procedure room	A room allocated for use for sterile and/or non-sterile procedures as specified in the schedule of premises of the Establishment Licence.
Production indices	Measurements of animal growth and production (e.g. milk production).
Project Licence (PPL)	A licence granted under section 5 of ASPA.
Protocol	A series of experimental steps defined in the Project Licence (PPL).
Re-use	The use of an animal in a protocol which has already been used in a previous protocol, where a naive animal could be used in its place. More information on re-use is available in the 'Guidance on the Operation of ASPA' available on the 'Research and Testing Using Animals' website.
Rooting	The natural behaviour of pigs and other animals to turn over soil or litter with their noses in search of edible matter.

Service room	A room within the facility which does not house animals and is not used for procedures, but contributes to the running of the facility, for example store rooms, cleaning and washing areas and waste management areas.
Single housed	Housed as one animal per enclosure, where other animals are not able to physically occupy the same space. This definition applies regardless of the degree of contact (e.g. sight or smell) that the animal may have with others.
Stud animal	An animal used for breeding only.
Supplying	Selling or passing on animals for a purpose regulated under ASPA.
Using	Using an animal for a purpose regulated under ASPA.
Wild animal	A species or animal that has never been cared for or farmed by humans, and is not descended from domesticated individuals.

Section 1, Chapter 1: Standards applicable to all animals

There are no changes to these standards pre-and post-January 2017.

1 The physical facilities

1.1 Functions and general design

All facilities shall be constructed so as to provide an environment which takes into account the physiological and ethological needs of the species kept in them. Facilities shall also be designed and managed to prevent access by unauthorised persons and the ingress or escape of animals.

Establishments shall have an active maintenance programme to prevent and remedy any defect in buildings or equipment.

1.2 Holding rooms

Establishments shall have a regular and efficient cleaning schedule for the rooms and shall maintain satisfactory hygiene standards.

Walls and floors shall be surfaced with a material resistant to the heavy wear and tear caused by the animals and the cleaning process. The material shall not be detrimental to the health of the animals and shall be such that the animals cannot hurt themselves. Additional protection shall be given to any equipment or fixtures so that they are not damaged by the animals nor do they cause injury to the animals themselves.

Species that are incompatible, for example predator and prey, or animals requiring different environmental conditions, shall not be housed in the same room nor, in the case of predator and prey, within sight, smell or sound of each other.

1.3 General and special purpose procedure rooms

Establishments shall, where appropriate, have available laboratory facilities for the carrying out of simple diagnostic tests, post-mortem examinations, and/or the collection of samples that are to be subjected to more extensive laboratory investigations elsewhere. General and special purpose procedure rooms shall be available for situations where it is undesirable to carry out the procedures or observations in the holding rooms.

Facilities shall be provided to enable newly acquired animals of uncertain health status to be isolated until their health status can be determined and the potential health risk to established animals assessed and minimised.

There shall be accommodation for the separate housing of sick or injured animals.

1.4 Service rooms

Store-rooms shall be designed, used and maintained to safeguard the quality of food and bedding. These rooms shall be vermin and insect-proof, as far as possible. Other materials, which may be contaminated or present a hazard to animals or staff, shall be stored separately.

The cleaning and washing areas shall be large enough to accommodate the installations necessary to decontaminate and clean used equipment. The cleaning process shall be arranged so as to separate the flow of clean and dirty equipment to prevent the contamination of newly cleaned equipment.

Establishments shall provide for the hygienic storage and safe disposal of carcasses and animal waste.

Where surgical procedures under aseptic conditions are required there shall be provision for one or more than one suitably equipped room, and facilities provided for postoperative recovery.

2 Environmental conditions

2.1 Ventilation and temperature

Insulation, heating and ventilation of the holding room shall ensure that the air circulation, dust levels, and gas concentrations are kept within limits that are not harmful to the animals housed, and are appropriate for the housing system in operation.

Temperature and relative humidity in the holding rooms shall be adapted to the species and age groups housed. The temperature shall be measured and logged on a daily basis.

Animals shall not be restricted to outdoor areas under climatic conditions which may cause them distress.

2.2 Lighting

Where natural light does not provide an appropriate light/dark cycle, controlled lighting shall be provided to satisfy the biological requirements of the animals and to provide a satisfactory working environment.

Illumination shall satisfy the needs for the performance of husbandry procedures and inspection of the animals.

Regular photoperiods and intensity of light adapted to the species shall be provided.

When keeping albino animals, the lighting shall be adjusted to take into account their sensitivity to light.

2.3 Noise

Noise levels, including ultrasound, shall not adversely affect animal welfare.

Establishments shall have alarm systems that sound outside the sensitive hearing range of the animals, where this does not conflict with their audibility to human beings.

Holding rooms shall, where appropriate, be provided with noise insulation and absorption materials.

2.4 Alarms

Establishments relying on electrical or mechanical equipment for environmental control and protection shall have a stand-by system to maintain essential services and emergency lighting systems as well as to ensure that alarm systems themselves do not fail to operate.

Heating and ventilation systems shall be equipped with monitoring devices and alarms.

Clear instructions on emergency procedures shall be prominently displayed.

3 Care of animals

3.1 Health

Establishments shall have a strategy in place to ensure that a health status of the animals is maintained that safeguards animal welfare and meets scientific requirements. This strategy shall include regular health monitoring, a microbiological surveillance programme and plans for dealing with health breakdowns and shall define health parameters and procedures for the introduction of new animals.

Animals shall be checked at least daily by a competent person.²¹ These checks shall ensure that all sick or injured animals are identified and appropriate action is taken.

²¹ A person who has been trained and assessed as competent to perform daily routine health checks for the animals in question.

3.2 Animals taken from the wild

Transport containers and means of transport adapted to the species concerned shall be available at capture sites, in case animals need to be moved for examination or treatment.

Special consideration shall be given and appropriate measures taken for the acclimatisation, quarantine, housing, husbandry, care of animals taken from the wild and, as appropriate, provisions for setting them free at the end of procedures.

3.3 Housing and enrichment

3.3.1 Housing

Animals, except those which are naturally solitary, shall be socially housed in stable groups of compatible individuals. In cases where single housing is allowed²² the duration shall be limited to the minimum period necessary and visual, auditory, olfactory and/or tactile contact shall be maintained where appropriate to the species, strain and sex. The introduction or re-introduction of animals to established groups shall be carefully monitored to avoid problems of incompatibility and disrupted social relationships.

3.3.2 Enrichment

All animals shall be provided with space of sufficient complexity to allow expression of a wide range of normal behaviour. They shall be given a degree of control and choice over their environment to reduce stress-induced behaviour. Establishments shall have appropriate enrichment techniques in place, to extend the range of activities available to the animals and increase their coping activities including physical exercise, foraging, manipulative and cognitive activities, as appropriate to the species. Environmental enrichment in animal enclosures shall be adapted to the species and individual needs of the animals concerned. The enrichment strategies in establishments shall be regularly reviewed and updated.

3.3.3 Animal enclosures

Animal enclosures shall not be made out of materials detrimental to the health of the animals. Their design and construction shall be such that no injury to the animals is caused. Unless they are disposable, they shall be made from materials that will withstand cleaning and decontamination techniques. The design of animal enclosure floors shall be adapted to the species and age of the animals and be designed to facilitate the removal of excreta.

3.4 Feeding

The form, content and presentation of the diet shall meet the nutritional and behavioural needs of the animal.

The animals' diet shall be palatable and non-contaminated. In the selection of raw materials, production, preparation and presentation of feed, establishments shall take measures to minimise chemical, physical and microbiological contamination.

Packing, transport and storage shall be such as to avoid contamination, deterioration or destruction. All feed hoppers, troughs or other utensils used for feeding shall be regularly cleaned and, if necessary, sterilised.

Each animal shall be able to access the food, with sufficient feeding space provided to limit competition.

3.5 Watering

Uncontaminated drinking water shall always be available to all animals.

When automatic watering systems are used, they shall be regularly checked, serviced and flushed to avoid accidents. If solid-bottomed cages are used, care shall be taken to minimise the risk of flooding.

²² See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.

Provision shall be made to adapt the water supply for aquaria and tanks to the needs and tolerance limits of the individual fish, amphibian and reptile species.

3.6 Resting and sleeping areas

Bedding materials or sleeping structures adapted to the species shall always be provided, including nesting materials or structures for breeding animals.

Within the animal enclosure, as appropriate to the species, a solid, comfortable resting area for all animals shall be provided. All sleeping areas shall be kept clean and dry.

3.7 Handling

Establishments shall set up habituation and training programmes suitable for the animals, the procedures and length of the project.



Section 1, Chapter 4: Cats

1 Single housing

Cats shall not be single housed for more than 24 hours at a time. Cats that are repeatedly aggressive towards other cats shall be housed singly only if a compatible companion cannot be found. Social stress in all pair or group housed individuals shall be monitored at least weekly. Females with kittens under four weeks of age or in the last two weeks of pregnancy may be housed singly.

2 Accommodation specifications

Areas for feeding and for litter trays shall not be less than 0.5 metres apart and shall not be interchanged.

2.1 Queen and litter up to three weeks of age

Breeding animals

Table 1-4-1

will be replaced by table 2-4-1

The minimum space requirement is for 1.0m² usable space, and a minimum height of 80cm. A useable shelf or solid nest box lid should be supplied to permit the queen some personal space distant from the litter.

2.2 Queen and litter from three weeks of age to weaning

Breeding animals

Table 1-4-2

will be replaced by table 2-4-2

The minimum space requirement is 0.5m² per queen with an additional 0.1m² for each kitten in the litter. The minimum pen size for any holding of queens and litters from three weeks to weaning must be 2m² and 2m high.

2.3 Post-weaned stock and adult male and female brood stock

Breeding animals, supply animals

Table 1-4-3

will be replaced by table 2-4-3

Weight of animal (kg)	Minimum floor space per animal (m ²)*
<1.0	0.20
1.0-2.0	0.35
2.0-3.0	0.50
>3.0	0.75

*No animals must be kept in a pen of less than 1m² and 2m high. Provision of space must be via pen housing with a minimum height of 2m.



2.4 Cats being used in procedures

Use animals

Table 1-4-4

will be replaced by table 2-4-3

Weight of animal (kg)	Minimum floor area for one or more cats (m ²)	Minimum floor area per group housed animal (m ²)	Minimum height (cm)
<3.0	0.50	0.33	50
>3.0	0.75	0.50	80



Section 1, Chapter 5: Dogs

1 Single housing

Dogs shall not be single housed for more than four hours at a time.

2 Accommodation specifications

Dogs shall where possible be provided with outside runs. If the enclosure incorporates an outside run, the internal area shall represent at least 50% of the minimum space to be made available to the animal(s).

The space allowances detailed below are based on the requirements of beagles, but giant breeds such as St Bernards or Irish wolfhounds shall be provided with allowances significantly in excess of these. For breeds other than the laboratory beagle, space allowances shall be determined in consultation with veterinary staff.

2.1 Bitch and litter up to six weeks of age

Breeding animals

Table 1-5-1

will be replaced by table 2-5-1

The minimum pen size for bitch and litter to six weeks is 4.5m².

2.2 Post-weaned stock

Breeding animals, supply animals

Table 1-5-2

will be replaced by table 2-5-2

Weight of animal (kg)	Minimum pen size (m ²)	Minimum floor space per group housed animal (m ²)*	Minimum height (m)
2-5	4.5	0.5	2.0
5-10	4.5	1.0	2.0
10-15	4.5	1.5	2.0
15-20	4.5	2.0	2.0
>20	4.5	2.25	2.0

*Minimum floor space that must be continuously available to each dog of the weight indicated.

2.3 Brood stock and stud dogs

Breeding animals

Table 1-5-3

will be replaced by table 2-5-2

Minimum floor space per animal (m ²)	2.25
Minimum pen size (m ²)	4.5
Minimum pen height (m)	2.0



2.4 Dogs being used in procedures

Use animals

Table 1-5-4

will be replaced by table 2-5-3

Weight of animal (kg)	Minimum floor area for one or more dogs (m ²)	Minimum floor space per group housed animal (m ²)	Minimum height (m)
<5.0	4.5	1.00	1.5
5.0-10	4.5	1.90	1.5
10-25	4.5	2.25	2.0
25-35	6.5	3.25	2.0
>35	8.0	4.00	2.0



Section 1, Chapter 6: Ferrets

1 Accommodation specifications

1.1 Jill and litter

Breeding animals

Table 1-6-1

will be replaced by table 2-6-1

Minimum floor area (cm ²)	Minimum cage height (cm)
5400	50

1.2 Stock animals

Breeding animals, supply animals

Table 1-6-2

will be replaced by table 2-6-1

Weight of animal (g)	Minimum floor area for one or more ferrets (cm ²)	Minimum floor area per group housed animal (cm ²)	Minimum cage height (cm)
<600	2000	1000	50
600-800	2250	1500	50
>800	4500	3000	50
Adult male	5400	–	50

1.3 Ferrets being used in procedures

Use animals

Table 1-6-3

will be replaced by table 2-6-1

Weight of animal (g)	Minimum floor area for one or more ferrets (cm ²)	Minimum floor area per group housed animal (cm ²)	Minimum cage height (cm)
<800	2250	1500	50
>800	4500	3000	50

Section 2, Chapter 1: Standards applicable to all animals

There are no changes to these standards pre- and post- January 2017.

1 The physical facilities

1.1 Functions and general design

All facilities shall be constructed so as to provide an environment which takes into account the physiological and ethological needs of the species kept in them. Facilities shall also be designed and managed to prevent access by unauthorised persons and the ingress or escape of animals.

Establishments shall have an active maintenance programme to prevent and remedy any defect in buildings or equipment.

1.2 Holding rooms

Establishments shall have a regular and efficient cleaning schedule for the rooms and shall maintain satisfactory hygiene standards.

Walls and floors shall be surfaced with a material resistant to the heavy wear and tear caused by the animals and the cleaning process. The material shall not be detrimental to the health of the animals and shall be such that the animals cannot hurt themselves. Additional protection shall be given to any equipment or fixtures so that they are not damaged by the animals nor do they cause injury to the animals themselves.

Species that are incompatible, for example predator and prey, or animals requiring different environmental conditions, shall not be housed in the same room nor, in the case of predator and prey, within sight, smell or sound of each other.

1.3 General and special purpose procedure rooms

Establishments shall, where appropriate, have available laboratory facilities for the carrying out of simple diagnostic tests, post-mortem examinations, and/or the collection of samples that are to be subjected to more extensive laboratory investigations elsewhere. General and special purpose procedure rooms shall be available for situations where it is undesirable to carry out the procedures or observations in the holding rooms.

Facilities shall be provided to enable newly acquired animals of uncertain health status to be isolated until their health status can be determined and the potential health risk to established animals assessed and minimised.

There shall be accommodation for the separate housing of sick or injured animals.

1.4 Service rooms

Store-rooms shall be designed, used and maintained to safeguard the quality of food and bedding. These rooms shall be vermin and insect-proof, as far as possible. Other materials, which may be contaminated or present a hazard to animals or staff, shall be stored separately.

The cleaning and washing areas shall be large enough to accommodate the installations necessary to decontaminate and clean used equipment. The cleaning process shall be arranged so as to separate the flow of clean and dirty equipment to prevent the contamination of newly cleaned equipment.

Establishments shall provide for the hygienic storage and safe disposal of carcasses and animal waste.

Where surgical procedures under aseptic conditions are required there shall be provision for one or more than one suitably equipped room, and facilities provided for postoperative recovery.

2 Environmental conditions

2.1 Ventilation and temperature

Insulation, heating and ventilation of the holding room shall ensure that the air circulation, dust levels, and gas concentrations are kept within limits that are not harmful to the animals housed, and are appropriate for the housing system in operation.

Temperature and relative humidity in the holding rooms shall be adapted to the species and age groups housed. The temperature shall be measured and logged on a daily basis.

Animals shall not be restricted to outdoor areas under climatic conditions which may cause them distress.

2.2 Lighting

Where natural light does not provide an appropriate light/dark cycle, controlled lighting shall be provided to satisfy the biological requirements of the animals and to provide a satisfactory working environment.

Illumination shall satisfy the needs for the performance of husbandry procedures and inspection of the animals.

Regular photoperiods and intensity of light adapted to the species shall be provided.

When keeping albino animals, the lighting shall be adjusted to take into account their sensitivity to light.

2.3 Noise

Noise levels, including ultrasound, shall not adversely affect animal welfare.

Establishments shall have alarm systems that sound outside the sensitive hearing range of the animals, where this does not conflict with their audibility to human beings.

Holding rooms shall, where appropriate, be provided with noise insulation and absorption materials.

2.4 Alarms

Establishments relying on electrical or mechanical equipment for environmental control and protection shall have a stand-by system to maintain essential services and emergency lighting systems as well as to ensure that alarm systems themselves do not fail to operate.

Heating and ventilation systems shall be equipped with monitoring devices and alarms.

Clear instructions on emergency procedures shall be prominently displayed.

3 Care of animals

3.1 Health

Establishments shall have a strategy in place to ensure that a health status of the animals is maintained that safeguards animal welfare and meets scientific requirements. This strategy shall include regular health monitoring, a microbiological surveillance programme and plans for dealing with health breakdowns and shall define health parameters and procedures for the introduction of new animals.

Animals shall be checked at least daily by a competent person.²³ These checks shall ensure that all sick or injured animals are identified and appropriate action is taken.

²³ A person who has been trained and assessed as competent to perform daily routine health checks for the animals in question.

3.2 Animals taken from the wild

Transport containers and means of transport adapted to the species concerned shall be available at capture sites, in case animals need to be moved for examination or treatment.

Special consideration shall be given and appropriate measures taken for the acclimatisation, quarantine, housing, husbandry, care of animals taken from the wild and, as appropriate, provisions for setting them free at the end of procedures.

3.3 Housing and enrichment

3.3.1 Housing

Animals, except those which are naturally solitary, shall be socially housed in stable groups of compatible individuals. In cases where single housing is allowed²⁴ the duration shall be limited to the minimum period necessary and visual, auditory, olfactory and/or tactile contact shall be maintained where appropriate to the species, strain and sex. The introduction or re-introduction of animals to established groups shall be carefully monitored to avoid problems of incompatibility and disrupted social relationships.

3.3.2 Enrichment

All animals shall be provided with space of sufficient complexity to allow expression of a wide range of normal behaviour. They shall be given a degree of control and choice over their environment to reduce stress-induced behaviour. Establishments shall have appropriate enrichment techniques in place, to extend the range of activities available to the animals and increase their coping activities including physical exercise, foraging, manipulative and cognitive activities, as appropriate to the species. Environmental enrichment in animal enclosures shall be adapted to the species and individual needs of the animals concerned. The enrichment strategies in establishments shall be regularly reviewed and updated.

3.3.3 Animal enclosures

Animal enclosures shall not be made out of materials detrimental to the health of the animals. Their design and construction shall be such that no injury to the animals is caused. Unless they are disposable, they shall be made from materials that will withstand cleaning and decontamination techniques. The design of animal enclosure floors shall be adapted to the species and age of the animals and be designed to facilitate the removal of excreta.

3.4 Feeding

The form, content and presentation of the diet shall meet the nutritional and behavioural needs of the animal.

The animals' diet shall be palatable and non-contaminated. In the selection of raw materials, production, preparation and presentation of feed, establishments shall take measures to minimise chemical, physical and microbiological contamination.

Packing, transport and storage shall be such as to avoid contamination, deterioration or destruction. All feed hoppers, troughs or other utensils used for feeding shall be regularly cleaned and, if necessary, sterilised.

Each animal shall be able to access the food, with sufficient feeding space provided to limit competition.

²⁴ See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.

3.5 Watering

Uncontaminated drinking water shall always be available to all animals.

When automatic watering systems are used, they shall be regularly checked, serviced and flushed to avoid accidents. If solid-bottomed cages are used, care shall be taken to minimise the risk of flooding.

Provision shall be made to adapt the water supply for aquaria and tanks to the needs and tolerance limits of the individual fish, amphibian and reptile species.

3.6 Resting and sleeping areas

Bedding materials or sleeping structures adapted to the species shall always be provided, including nesting materials or structures for breeding animals.

Within the animal enclosure, as appropriate to the species, a solid, comfortable resting area for all animals shall be provided. All sleeping areas shall be kept clean and dry.

3.7 Handling

Establishments shall set up habituation and training programmes suitable for the animals, the procedures and length of the project.



Section 2, Chapter 4: Cats

1 Single housing

Cats shall not be single housed for more than 24 hours at a time. Cats that are repeatedly aggressive towards other cats shall be housed singly only if a compatible companion cannot be found. Social stress in all pair or group housed individuals shall be monitored at least weekly. Females with kittens under four weeks of age or in the last two weeks of pregnancy may be housed singly.

2 Accommodation specifications

Areas for feeding and for litter trays shall not be less than 0.5 metres apart and shall not be interchanged.

2.1 Queen and litter up to three weeks of age

Breeding animals

Table 2-4-1

will be replaced by table 1-4-1

The minimum space in which a queen and litter up to the age of three weeks may be held is the space for a single cat.

2.2 Queen and litter from three weeks of age to weaning

Breeding animals

Table 2-4-2

will be replaced by table 1-4-2

The minimum pen size for any holding of queens and litters is 2.0 m² and 2 m high, which shall be gradually increased so that by four months of age litters have been re-housed following the space requirements for adults.

2.3 Post-weaned stock, adult male and female brood stock and cats being used in procedures

Breeding animals, supply animals

Table 2-4-3

will replace tables 1-4-3 and 1-4-4

	Floor area excluding shelves (m ²)	Shelf area (m ²)	Height (m)
Minimum for one adult animal	1.5	0.5	2.0
For each additional animal add	0.75	0.25	–



Section 2, Chapter 5: Dogs

1 Single housing

Dogs shall not be single housed for more than four hours at a time.

2 Accommodation specifications

Dogs shall where possible be provided with outside runs. If the enclosure incorporates an outside run, the internal area shall represent at least 50% of the minimum space to be made available to the animal(s).

The space allowances detailed below are based on the requirements of beagles, but giant breeds such as St Bernards or Irish wolfhounds shall be provided with allowances significantly in excess of these. For breeds other than the laboratory beagle, space allowances shall be determined in consultation with veterinary staff.

2.1 Bitch and litter up to six weeks of age

Breeding animals

Table 2-5-1

will replace table 1-5-1

A nursing bitch and litter shall have the same space allowance as a single bitch of equivalent weight. The whelping pen shall be designed so that the bitch can move to an additional compartment or raised area away from the puppies.

2.2 Post-weaned stock, brood stock and stud dogs

Breeding animals, supply animals

Table 2-5-2

will replace tables 1-5-2 and 1-5-3

Weight of animal (kg)	Minimum pen size (m ²)	Minimum floor space per group housed animal (m ²)	Minimum height (m)
<5	4.5	0.5	2.0
5-10	4.5	1.0	2.0
10-15	4.5	1.5	2.0
15-20	4.5	2.0	2.0
>20	8.0	4.0	2.0

2.3 Dogs being used in procedures

Use animals

Table 2-5-3

will replace table 1-5-4

Weight of animal (kg)	Minimum pen size (m ²)*	Minimum floor area for one or two dogs (m ²)*†	For each additional animal add a minimum of (m ²)	Minimum height (m)
<10	4.5	4.5	2.0	2.0
10-20	4.5	4.5	2.25	2.0
>20	8.0	8.0	4.0	2.0

*Dogs that are pair or group housed may each be constrained to half the total space provided (2.25 m² for a dog under 20 kg, 4 m² for a dog over 20 kg) while they are undergoing procedures, if this separation is essential for scientific purposes. The period for which a dog is so constrained shall not exceed four hours at a time.

†Where a shelf is provided for dogs that are use animals, for the purpose of calculating the minimum floor area, up to 0.5 m² of the shelf area may be included where there is adequate height for the animal above and below the shelf.



Section 2, Chapter 6: Ferrets

1 Accommodation specifications

1.1 All ferrets

All animals

Table 2-6-1

will replace tables 2-6-1, 2-6-2 and 2-6-3

Weight of animal (g)	Minimum floor area for one or more ferrets (cm ²)	Minimum floor area per group housed animal (cm ²)	Minimum cage height (cm)
<600	4500	1500	50
>600	4500	3000	50
Adult male	6000	6000	50
Jill and litter	5400	5400*	50

*For the purposes of this table, a jill and litter shall be counted as one animal until the time of weaning.

Section 3, Chapter 1: Advice applicable to all animals

1 The physical facilities

1.1 Functions and general design

When siting an animal house, consideration should be given to the activities in the adjacent buildings and any effect these may have on the welfare of the animals. An animal facility forming part of a larger complex should normally be designed to be self-contained. Wild, stray or pet animals should not be able to gain entry to any part of the animal house, including stores and personnel areas. Special care should be taken where drains and other services pierce the walls or floors to ensure that they have been properly proofed against rodents and other vermin.

Any special requirement for exercise or social contact for the species to be housed should incorporate adequate facilities sufficient for the activities carried out within it.

When substantial alterations to the premises are proposed, the Inspector should be consulted at an early stage.

1.1.1 Security

Facilities that are part of a larger building complex should also be protected by appropriate security and building measures and arrangements that limit the number of entrances. Advice should be taken about security from Crime Prevention Officers, from the local police or other experts during the design of new facilities or modifications of existing premises.

1.2 Holding rooms

The following are strongly recommended:

1. that all joints between door frames and walls etc. are sealed;
2. that floor-to-wall, wall-to-ceiling and wall-to-wall junctions are coved for easy cleaning;
3. that special attention is paid to junctions, including those with doors, ducts, pipes and cables;
4. where an inspection window is required in the door, that a flush fitted window is used to reduce maintenance;
5. that floors should be smooth, impervious and have a non-slippery (including when wet), easily washable surface, which can carry the weight of racks and other heavy equipment without being damaged;
6. that drains, if present, are adequately covered and fitted with a barrier, which will prevent vermin from gaining access or animals from escaping.

It is advisable to install services in such a way that they are either buried within the fabric of the building, boxed in or clear of the wall surface for easy cleaning. When the fabric of the building is penetrated, the holes created would normally be sealed.

It is recommended that holding rooms, where appropriate, have facilities for carrying out non-regulated procedures and manipulations.

Farm animals in pens generally require more robust wall and floor finishes. There should be no projections that could present a hazard to animals.²⁵ Where no Section 1 or 2 standards exist, farm animals which are kept in animal houses should be given at least as much room as recommended in other relevant legislation and Codes of Practice, for example those produced by Defra. For some procedures the standards of environment and housing required may be much higher than where animals are kept under farm conditions. Exercise areas should normally be provided for larger farm

²⁵ In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.3.

animals but, in some cases, such facilities may be impracticable from an experimental, environmental, disease control or security point of view.

It is advisable to avoid housing some species within sight, sound or smell of each other because of their natural predator-prey relationships. The decision to allow/avoid particular combinations using particular housing systems should be evidence-based.

1.3 General and special purpose procedure rooms

At breeding or supplying establishments suitable facilities for making consignments of animals ready for dispatch should normally be available.

Animals inoculated with infective agents that are transmissible to man or to other animals held on the premises should be contained within an area reserved for this purpose which has been designed, built and maintained in accordance with appropriate health, safety and biosecurity regulations.

It is advisable that regulated procedures, surgery or euthanasia are not performed in rooms where animals are normally housed or where other conscious animals are undergoing procedures, where this may cause additional avoidable stress to the animals. There should be separate preparation areas for animals, equipment and staff.²⁶

Sick or injured animals should normally be housed separately, unless being separated from their normal social group is more detrimental than beneficial to their recovery. The advice of the veterinary surgeon responsible for the animals' treatment should be followed.

1.3.1 Surgical facilities

It is advisable that facilities used for aseptic surgery should meet the following minimum requirements.

- a. Surfaces and finishes within the surgical area should be designed so that they can be kept clean for use in sterile procedures.
- b. The surgical area should be large enough and arranged appropriately to allow correct aseptic technique.
- c. There should be separate areas for preparation of animals, surgery and recovery; these will preferably be separate rooms, although separate areas within the same room may be an appropriate alternative.
- d. There should be no open shelving in surgical areas. Ceiling-high wall cupboards or cupboards with sloped tops to prevent dust accumulation are preferred, should storage provision be essential.
- e. There should be a minimum of furniture in the surgical area so as to avoid the accumulation of dust and for ease of cleaning.

For detailed advice on aseptic technique, please see *LASA 2010 Guiding Principles for Preparing for and Undertaking Aseptic Surgery*.²⁷

1.4 Service rooms

Special facilities may be required for storing and handling chemicals.

It is advisable that separate store-rooms and adequate space for clean cages, instruments and equipment are provided.

It is advisable that walls and floors are covered with a suitably durable surface material and the ventilation system has ample capacity to carry away the excess heat and humidity.

²⁶ Please see also Sections 1 and 2 Chapter 1 *Standards applicable to all animals* paragraph 1.3.

²⁷ *LASA 2010 Guiding Principles for Preparing for and Undertaking Aseptic Surgery. A report by the LASA Education, Training and Ethics section.* (M. Jennings and M. Berdoy Eds) www.lasa.co.uk/publications.html (accessed 27/5/14).

If on-site incineration of waste material is not possible or necessary, it is advisable that suitable arrangements are made for the safe disposal of such material, having regard to national and local regulation and by-laws. Special precautions are required with toxic, radioactive or infectious waste.

It is advisable that the general design and construction of circulation areas corresponds to the standards of the holding rooms. Consideration should be given to the width of the corridors to allow easy circulation of movable equipment.

2 Environmental conditions

Environmental variables can have a significant impact on animal welfare. Furthermore, experimental results may be influenced by environmental conditions. Animals should be kept under conditions that favour a consistency of response to scientific procedures. Unstable environmental conditions are likely to introduce avoidable variability into biological responses. To demonstrate any experimental response against such a variable background generates a requirement for greater animal usage if the result is to be statistically valid. Good control of variables such as ventilation, humidity, temperature, lighting and noise can therefore contribute both to good science and to the minimisation of animal use.

It is advisable that measures are in place to ensure that breakdowns in equipment or systems controlling the environment are remedied promptly. Consideration should be given to maintaining a stock of critical spare parts.

Conditions should not be detrimental to the welfare of the animals, unless authorised by the project licence.

2.1 Engineering standards, performance and welfare

The species-specific chapters within Section 3 provide suggested ranges for environmental parameters, for example temperature and relative humidity. The intention of providing these ranges is to indicate typical values that will normally satisfy the requirements of Sections 1 and 2 to provide “appropriate” environmental conditions.

However, whether the environmental conditions are or are not “appropriate” will ultimately be assessed by performance and welfare outcomes. Examples of indicators that may demonstrate unsuitable environmental conditions include, but are not limited to:

1. presence of respiratory disease in rats that may be attributable to low relative humidity;
2. decreased reproductive performance in mice that may be attributable to a noisy environment;
3. greasy coats in gerbils that may be attributable to high relative humidity;
4. increased aggressive behaviour in pigs that may be attributable to decreased environmental stimulation;
5. decreased growth rates in cattle that may be attributable to inadequate access to food of appropriate quality.

Where there is no impact on performance or welfare the ranges may be extended, with the agreement of appropriate named persons.

Even where the parameters in question are within the suggested ranges, if there appears to be, or may soon be an adverse impact on the animals, appropriate steps should be taken to adjust the parameters so as to avoid that adverse impact. Likewise, being within the suggested ranges *per se* does not necessarily guarantee that conditions are “appropriate” in every situation. Anticipation of potential welfare problems is as important as promptly dealing with them should they occur. Focussing on outcomes and solutions specific to your facility will ensure that your standards of accommodation and care are appropriate for your animals.

This principle should also be extended to other advice presented in Section 3 that could be interpreted as engineering standards.

2.2 Ventilation

The purpose of the ventilation system is to provide sufficient fresh air of an appropriate quality and to keep down the levels and spread of odours, noxious gases, dust and infectious agents of any kind. It provides for the removal of excess heat and humidity.

The air in the room should be renewed at frequent intervals. A ventilation rate of 15 to 20 air changes per hour of fresh or conditioned air distributed throughout the room is normally adequate for a fully stocked room of rodents or lagomorphs in open cages. However, in some circumstances, for example where stocking density is low, eight to ten air changes per hour may suffice. For cats, dogs and primates, 10 to 12 changes per hour may be adequate. In some cases, natural ventilation may suffice and mechanical ventilation may not even be needed. Re-circulation of untreated air should be avoided. However, it should be emphasised that even the most efficient system cannot compensate for poor cleaning routines or negligence. A smell of ammonia probably reflects overstocking, too little ventilation, inadequate cleaning, or a combination of these factors; the causes should be investigated and rectified. It is advisable that the optimum stocking density for each room for each species likely to be housed is calculated and readily available.

It is advisable that the ventilation system is designed so as to avoid harmful draughts and noise disturbance while delivering air as evenly as possible throughout the holding area. Please see paragraph 2.9 below for considerations for rooms holding Individually Ventilated Cages (IVCs), incubators etc.

The ventilation system can be used to create differential air pressures within the building as part of a “barrier system”. “Clean” areas are generally maintained at higher pressure and “hazardous” areas at lower pressure than those adjacent to them to minimise the leakage of “dirty” air into “cleaner” areas and the escape of airborne hazards into the air outside the premises. This is effective only if the supply air is itself clean or is suitably filtered to be free from contaminants.

2.3 Temperature

The subsequent species-specific sections give the range within which it is recommended that the temperature should be maintained. It should also be emphasised that the figures given in these sections apply only to adult, normal animals. New-born, young, hairless, newly operated, sick or injured animals will often require a much higher temperature level. The temperature of the premises should be regulated according to possible changes in the animals’ thermal regulation, which may be compromised due to special physiological conditions or to the effects of the procedures.

It may be necessary to provide a ventilation system having the capacity both to heat and cool the air supplied.

In user establishments precise control of the temperature experienced by the animal may be required, because the temperature is a physical factor which has a profound effect on the metabolism and behaviour of all animals, and therefore affects the validity of certain scientific outcomes. The target should be to maintain the temperature at which the animal is living in a band width of 4°C, the whole of the band lying within the optimal range indicated. For breeding in some species, however, a controlled daily fluctuation in temperature may be beneficial.

Outdoor areas provided for animals to exercise and interact cannot have strict temperature regulation.

2.4 Humidity

For some species, such as rats and gerbils, relative humidity may need to be controlled within a fairly narrow range to minimise the possibility of health or welfare problems, whereas other species, such as dogs, tolerate well wide fluctuations in humidity levels. As a general rule, prolonged periods below 40% or above 70% should be avoided.

2.5 Lighting

Exposure of some species or strains (especially albinos) to bright light should be avoided and darker areas for withdrawal should be available within the animal enclosures.

Consideration should be given to the inclusion of windows in holding rooms, since they are a source of natural light and can provide environmental enrichment for some species, especially non-human primates, dogs, cats, some farm animals and other large mammals.

The circadian “clock” of some species may be affected as much by light pulses of less than one second during the dark phase as by a long photoperiod; thus it may be important not to turn on lights during the dark period. On the other hand, intervals of darkness during the light period are far less disruptive. Where animals are maintained on reverse photoperiod, daily inspections of the animals should still be undertaken.

2.6 Noise

Noise can be a disturbing factor for animals. High noise levels and sudden noises can cause stress which, in addition to the welfare consequences for the animal, may influence experimental data. Background noise may be helpful in reducing the impact of unavoidable sudden noises.

Due consideration should be given to controlling noise levels within the hearing ranges of animals, including in some cases ultrasound (sound above the hearing range of the human being, conventionally taken to be sounds exceeding 20 kHz), particularly during their resting phase. This includes reducing noise due to human working practices as well as considering noise from equipment – for example alarms should be of a silent type. The layout of rooms and corridors can be major factors influencing the acoustic environment and this should be taken into account in their design.

2.7 Vibration

Animals such as rodents, amphibians and fish are very sensitive to vibration. Vibration can have a negative effect on reproductive efficiency and can have an influence on experimental results. It is therefore important to minimise vibration in the animal facility. For this reason, animal holding and procedure rooms should not be located adjacent to sources of vibration such as cage wash areas, lifts or busy corridors where cage racks are constantly being moved. Vibration is not normally an issue for large animals although minimising vibration may still be important in behaviour testing rooms.

Vibration is more likely to be an issue in animal facilities located in an upper level of a building rather than at ground level because of structural considerations. However animals in ground floor and basement facilities may be affected by vibration arising from major structural projects. The potential impact of vibration should be carefully evaluated when considering the use of portable buildings.

2.8 Alarms

A technologically dependent animal facility is a vulnerable entity. It is strongly recommended that such facilities are appropriately protected to detect hazards such as fires, the intrusion of unauthorised persons, and the breakdown of essential equipment, such as ventilation fans, air heaters or coolers and humidifiers.²⁸

Carefully designed monitoring, alarms and call-out procedures will ensure that any faults can be quickly identified and promptly rectified, and that the minimum number of animals is impacted for the shortest possible time by any fault.

Care should be taken to ensure that the operation of an alarm system causes as little disturbance as possible to the animals.

2.9 Special environments (e.g. Individually Ventilated Cages (IVCs), incubators, etc.)

Biocontainment systems (e.g. Individually Ventilated Cages [IVCs] and isolators but excluding filter top cages) are designed to ensure that the key environmental welfare issues are catered for. Thus, they should provide and maintain an appropriate environment in terms of temperature, relative humidity, air quality and air velocity (i.e. avoidance of draughts).

²⁸ In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 2.4.

It is important that alarms and their management effectively detect and deal with any problems should they arise. The appropriate degree of complexity of the alarm and length of response time will be dependent on the biocontainment system and the species being kept in it.

In facilities in which the ventilation system is unable to provide suitable air quality, biocontainment systems may offer a less expensive alternative to complete refurbishment. However, in such cases all the other environmental parameters will still need to be considered. For example, unless IVCs are connected to a system that provides heating or cooling they will be totally dependent on the room temperature. Rooms should therefore be capable of providing air of an appropriate temperature and humidity. Where biocontainment systems are used in rooms that do not meet code of practice requirements, particular consideration needs to be given to the potential for failure of the biocontainment unit itself, as failure in these circumstances is likely to have a greater/more rapid adverse impact on animal welfare.

2.10 Emergency response planning

Carefully considered contingency planning and emergency response plans are central to the management of the animal facility.²⁹ There are a number of aspects that should be thought through including what happens in the event of a major incident to the facility or locality (e.g. loss of power or water) and how emergency animal care and accommodation can be provided. However, in some cases the facilities or programme of work may be so compromised that destruction of the animals needs to be considered to prevent significant welfare issues developing. Therefore, plans should normally include arrangements for the emergency evacuation, housing, husbandry (including feeding and watering), and, where inevitable, the killing of animals. These plans should normally include assessments of the risks, their likelihood and mitigations as well as actions to be taken, by whom, in the event of temporary, longer-term disruption or catastrophic facility failures. They should normally reflect the requirements for the care of animals as described in Part 4 below.

3 Education and training

All persons handling animals or directly involved in caring for animals being bred, held or used for experimental or other scientific purposes should be appropriately educated and trained to the standard described in Section 9 of the Guidance on the Operation of the Animals (Scientific Procedures) Act 1986.

4 Care of animals

Animals within an animal facility are totally dependent on humans for their health and well-being. The physical and psychological state of the animals will be influenced by their local environment, food, water and the care and attention provided by the animal care staff and scientific personnel.

4.1 Supervision of procedures

Unconscious animals (i.e. where a protective gag reflex is absent) should be closely monitored. This includes animals undergoing imaging, in warming facilities, undergoing surgical preparation or during or after surgery.

4.2 Health

Animals of an appropriate known health status are an essential prerequisite for good animal welfare and good science. Intercurrent infection in the animal population may call into question the validity of information obtained from scientific procedures and make interpretation of results impossible.

The aim is to maintain animals in good health and physical condition, behaving in a manner normal for the species and strain and with a reasonably full expression of their behavioural repertoire, and amenable to handling.

²⁹ They are likely to be necessary to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 2.4.

The person responsible for the establishment should ensure regular inspection of the animals and supervision of the accommodation and care by a veterinarian or other competent person, normally a NACWO.

Should behavioural or breeding problems occur, or should further information on specific requirements for other species be required, advice should be sought from experts specialised in the species concerned and care staff or veterinary surgeon, to ensure that any particular species' needs are adequately addressed.

Regular health monitoring of all animals should be carried out, comprising the daily check, plus ongoing monitoring and evaluation to enable prompt interventions to safeguard the health of individuals and populations, as appropriate to the species and situation. Animals which are undergoing scientific procedures should be inspected at a frequency commensurate with the severity of the procedure and/or potential rate of change of the condition of the animal, and never less than once per day.

Because of the potential risk of contamination of animals and staff presented by the handling of animals, it is advisable that particular attention is paid to the institution of hygiene procedures and supervision of staff health.

4.3 Separation from the mother

Early weaning from the mother – if it may cause pain, suffering, distress or lasting harm – may be a regulated procedure. In such circumstances the Home Office should be consulted regarding whether Project Licence authority is required.

4.4 Transport of animals

4.4.1 Legislation and responsibilities

Prior to entry to a licensed establishment, an animal's welfare during transport is governed by applicable international, EU and UK law.³⁰ The enforcement authority in England, Wales and Scotland is the Animal and Plant Health Agency (APHA), and in Northern Ireland the Department of Agriculture and Rural Development.

Once an animal enters a licensed establishment and becomes a protected animal under ASPA its welfare during any subsequent transport is *additionally* regulated under ASPA. Both project licence holders and establishment licence holders have responsibilities relating to transport of protected animals.³¹

Under ASPA, the person legally accountable for the transport of the animals (the sending establishment licence holder) has the overall accountability for the planning, carrying out and completion of the whole journey, regardless of whether duties are subcontracted or delegated to other parties during transport. The sending establishment licence holder should check that all necessary arrangements are in place to fulfil standard condition 4(6) of their establishment licence – namely that the conditions under which a protected animal is transported are appropriate for the animal's health and well-being.

Once the animals have been received at their destination, legal accountability for their care transfers to the receiving establishment licence holder, or, in the case of establishments that are not licensed, the animal is discharged from ASPA.

The person in charge of the welfare of the animals has direct physical responsibility for the care of the animals during transport. Such a person may be the attendant or the driver of a vehicle if fulfilling

³⁰ Animals should be transported in accordance with the principles of the European Convention on the Protection of Animals during International Transport (ETS No. 65 and ETS No. 193), having regard to the Resolution on the acquisition and transport of laboratory animals, adopted by the May 1997 Multilateral Consultation of the Parties to Convention ETS No. 123 and, to EU Regulation (EC) 1/2005 on the protection of animals during transport, implemented in England by The Welfare of Animals (Transport) (England) Order 2006 and by parallel legislation in Scotland, Wales and Northern Ireland.

³¹ Establishment Licence Standard Conditions 4(6), 23(a) and 23(b). Project Licence Standard Condition 24(a) and section D of the licence itself.

the same role. It is considered good practice for the person in charge of the welfare of animals being transported to be aware of the special needs of the animals in their care.

4.4.2 Journey planning

For animals, transportation is a stressful experience which should be mitigated as far as possible. The following principles should apply to all animal movements, from short journeys by vehicle within scientific establishments to international transportation.

It is advisable that the route is planned in order to ensure that the transport is carried out efficiently to minimise journey time, from loading to unloading, and to avoid delays in order to limit any stress and suffering of the animals. Care is needed to ensure that animals are maintained under suitable environmental conditions for the species, and that measures are taken to minimise sudden movements, excessive noise, or vibration during transport. Both sender and recipient should agree the conditions of transport, departure and arrival times to ensure that full preparation can be made for the animals' arrival.

It is advisable that containers for travel:

- a. confine the animals in comfortable hygienic conditions with minimal stress for the duration of the journey;
- b. contain sufficient food and water or moisture in a suitable form;
- c. contain sufficient bedding so that animals remain comfortable and in conditions close to their thermo-neutral zone;
- d. be of such a design and finish that an animal will not damage itself during loading, transport and whilst being removed from the container;
- e. be escape-proof, leak-proof and capable of being handled without the animals posing a risk to handlers;
- f. be designed to prevent or limit the entry of micro-organisms, where appropriate;
- g. be designed so that they can be thoroughly disinfected between shipments, if intended to be reusable;
- h. allow sufficient ventilation;
- i. allow visual inspection of the animals without compromising their microbiological status (where appropriate);
- j. be clearly labelled.

4.4.3 Dispatch

The sender should ensure that the animals are examined and found to be fit for transport before being placed in the transport container. Animals that are incompatible should be appropriately separated for transport.

Animals that are sick or injured should not normally be considered fit for transport, except for those whose sickness or injury is such that transport will not cause additional suffering, or where the transport is under veterinary supervision for, or following, veterinary treatment.

Sick or injured animals may also be transported for experimental or other scientific purposes approved by the Home Office if the illness or injury is part of the research programme. No additional suffering should be imposed by the transport of such animals, and particular attention should be paid to any additional care which may be required. A competent person, normally a veterinarian or NACWO, should confirm that such animals are fit for the intended journey. Pregnant and post partum animals (and their offspring) need special care.

4.4.4 Reception

It is good practice to ensure that on arrival at their destination the animals are removed from their transport containers and examined by a competent person, normally a veterinarian or NACWO, with the least possible delay. It is recommended that after inspection, the animals are transferred to clean cages or pens and supplied with food and water as appropriate.

Animals which are sick, injured or otherwise out of condition, should be examined by a veterinary surgeon. These animals should be provided with veterinary treatment as appropriate or, if deemed necessary, promptly killed by a humane method, in line with the principles set out in Section 6 of the Guidance on the Operation of the Animals (Scientific Procedures) Act 1986.

4.5 Quarantine, acclimatisation and isolation

The objectives of quarantine and isolation periods are:

- a. to protect other animals in the establishment;
- b. to protect man against zoonotic infection; and
- c. together with an acclimatisation period, to foster good scientific practice.

According to the circumstances, these periods may vary and are either determined by national regulations or a competent person, normally the NVS.

4.5.1 Quarantine

Quarantine is defined as a period of housing newly introduced or reintroduced animals separately from existing animals in the establishment to establish the state of health of the animals and to prevent the introduction of disease. Such a period is recommended when the health status of the animal is not known.

4.5.2 Acclimatisation

A period of acclimatisation is usually needed to allow animals to recover from transport stress, to become accustomed to a new environment and to husbandry and care practices. Even when the animals are seen to be in good health, it is strongly advisable for them to undergo a period of acclimatisation before being used in a procedure. The time required depends on several things, such as the stress to which the animals have been subjected. This in turn depends on several factors such as the duration of the transportation, the age of the animal and degree of change of the social environment. It should also be taken into account that international transport may necessitate an extended period of acclimatisation due to disturbance of the diurnal rhythm of the animals. Acclimatisation periods should be agreed by the NVS, NACWO and investigator to ensure good animal welfare and science outcomes.

4.5.3 Isolation

A period of isolation of diseased animals is intended to reduce the risk of infecting other animals or humans. It is advisable to house separately or in isolation any animal suspected of posing such a risk, for an appropriate period of time.

4.6 Housing and enrichment

Restricted environments can lead to behavioural and physiological abnormalities and affect the validity of scientific data. It is a requirement that animals should be able to exercise “a degree of choice over their environment”.³² This could be achieved, for example, by having a variety of resting places in the enclosure, or by the animal being able to construct its own nest or resting place.

Consideration should be given to the potential impact of the type of accommodation, and that of the environmental and social enrichment programmes, on the outcome of scientific studies, in order to avoid the generation of invalid scientific data and consequential animal wastage.

³² Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.2.

It is recommended that the design of housing and enrichment strategies should take into account the need to observe the animals with minimum disruption and to facilitate handling. Consideration should be given to the potential conflict between the need for regular observation of animals and the importance of avoiding disturbances that may have a negative impact on their welfare. Mandatory minimum animal enclosure sizes and space allowances are included for most species routinely used in research programmes in Sections 1 and 2 of this CoP.

The shape of the enclosure and the furniture provided may be as important to the animal as overall size. Room should be allowed for growth of the animals. Some animals continue to grow into old age although they may become less active.

Unless otherwise specified, additional surface areas provided by enclosure additions, such as shelves and mobile enrichment devices, should be regarded as being in addition to the recommended minimum floor areas.

Single housing should only occur on animal health or welfare grounds, unless it is permitted by Project Licence authority. The need for single housing on health or welfare grounds should be agreed with a competent person, normally a veterinarian or NACWO. There are some occasions when stud males need to be housed singly (e.g. to prevent fighting). In such circumstances, additional resources should be targeted to the welfare and care of these animals. In such cases, the duration should be limited to the minimum period necessary and, where possible, visual, auditory, olfactory and tactile contact should be maintained where appropriate to the species, strain and sex. The possibility of social housing can be promoted by purchasing compatible individuals when procuring animals of gregarious species.

Consideration should be given to housing animals so that they can be easily inspected. Some procedures may require a more restrictive system of housing to cater for special requirements imposed by experimental procedures, for example, the need to collect excreta or expired air, or the use of radioactive isotopes. Such housing should be used for the minimum time only and be authorised as appropriate.³³

As animals grow, the adequacy of the housing or enclosure, in particular in relation to size and area, should be monitored to ensure that it continues to meet the requirements described in Sections 1 and 2 of this Code of Practice.

4.6.1 Enrichment

In addition to social activities, enrichment can be achieved by allowing and promoting physical exercise, foraging, manipulative and cognitive activities, as appropriate to the species. It is advisable to allow the animals to exercise at every possible opportunity. Forms of enrichment should be adaptable so that innovation based on new understanding may be incorporated.

It is strongly recommended that the staff responsible for animal care understand the natural behaviour and biology of the species, so that they can make sensible and informed choices on enrichment. They should be aware that all enrichment initiatives are not necessarily to the advantage of the animal and therefore should monitor their effects and adjust the programme as required.

4.7 Feeding

The behavioural requirements for some species include foraging, so for animals of these species it is strongly advised that the opportunity for foraging is given. Roughage is an important component of the diet for some species of animals, as well as a means of satisfying some behavioural needs.

It is recommended that food is packed in containers that provide clear information on the identity of the product and its date of production. Where a commercially manufactured product is used, an expiry date should be clearly defined by the manufacturer. It is strongly advised to adhere to such expiry dates.

³³ See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.

Store-rooms should normally be cool, dark, dry, adequately ventilated and vermin and insect-proof. It is advisable to store perishable food like greens, vegetables, fruit, meat and fish in cold rooms, refrigerators or freezers.

If moist food is used, or if the food is easily contaminated with for example water or urine, daily cleaning is normally necessary.

In some circumstances, food intake may need to be controlled to avoid obesity.

Where withholding of food is necessary for experimental or safety reasons, such as prior to anaesthesia, care should be taken that deprived animals are not stressed by exclusion from food whilst other animals around them are fed. Removing deprived animals to another cage or room may be less stressful than leaving them with the fed animals.

Consideration should be given to providing diets for disease-free animals that have been treated to destroy vegetative organisms, parasites, pests and spores. Autoclaving or irradiation may be required. Where special diets containing chemicals for testing have been used, the nutritional consequences of the preparation and storage of the diet should be considered.

4.8 Watering

Water is a vital resource to all animals. However, water is also a potential vehicle for micro-organisms, and due consideration should be given to arranging the supply so that the contamination risk is minimised. It is important that sufficient watering points (drinkers) are available.

Consideration should be given to the design and use of watering systems to ensure the provision of an adequate quantity of water of suitable quality. In addition, watering systems may carry a risk of flooding in the event of failure. It is strongly recommended that systems are designed to ensure that as few animals as possible are affected by any such failures. At least daily checks and regular cleaning are recommended to ensure blockages or leakages are detected and to reduce the spread of infection.³⁴ A diligent programme of maintenance and renewals is required.

Emergency provisions should be made in case pipes freeze or supplies otherwise fail.³⁵

4.9 Flooring, substrate, litter, bedding and nesting material

Various materials are commonly placed into the animal enclosure to serve the following functions: to absorb urine and faeces, and thus facilitate cleaning; to allow the animal to perform certain species-specific behaviour, such as foraging, digging or burrowing; to provide a comfortable, yielding surface or secure area for sleeping; to allow the animal to build a nest for breeding purposes.

Certain materials may not serve all of these needs, and it is therefore important to provide sufficient and appropriate materials. Any such materials should be dry, absorbent, dust-free, non-toxic and free from infectious agents or vermin and other forms of contamination. Materials derived from wood that have been chemically treated, or containing toxic natural substances, as well as products which cannot be clearly defined and standardised, should be avoided. Hydrocarbons present in wood-derived bedding have been shown to be capable of inducing cytochrome P450-dependent microsomal enzyme systems of animals resulting in altered drug metabolism.

In general, changes to the type of bedding material used should be avoided mid-study. Where changes are unavoidable, the investigators should be informed with as much notice as possible.

4.10 Cleaning

The standard of a facility, including good husbandry, depends very much on good hygiene. It is strongly recommended that a very high standard of cleanliness and order is also maintained in holding, washing and storage rooms. Adequate routines for the cleaning, washing, decontamination and, when necessary, sterilisation of enclosures and accessories, bottles and other equipment should be established and carried out.

³⁴ In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.5.

³⁵ In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.5.

Consideration should be given to the design of these cleaning and disinfection regimes so as they are not detrimental to animal health or welfare. It is advisable that clear operating procedures, including a recording system, are in place for the changing of bedding in animal enclosures.

It is advisable that there should be regular cleaning and, where appropriate, renewal of the materials forming the ground surface in animal enclosures to avoid them becoming a source of infection and parasite infestation.

Odour-marking is an important form of behaviour in some species, and cleaning disturbances will cause some degree of social disruption. Cleaning regimes should have regard for these behavioural needs. Decisions on frequency of cleaning should be based on the type of animal enclosure, the type of animal, the stocking density, and the ability of the ventilation system to maintain suitable air quality.

4.11 Handling

The quality of care animals are given may influence not only breeding success, growth rate and welfare but also the quality and outcome of experimental procedures. Accustoming animals to competent and confident handling during routine husbandry and procedures reduces stress both to animals and personnel. For some species, for example dogs and non-human primates, a training programme to encourage co-operation during procedures can be beneficial to the animals, the animal care staff and the scientific programme. For certain species, social contact with humans should be a priority. However, in some cases, handling should be minimised (e.g. wild animals).

Staff caring for animals are expected at all times to have a caring and respectful attitude towards the animals in their care, and to be proficient in the handling and restraint of the animals. Where there is evidence of a welfare benefit for the animals concerned, staff time should be set aside for talking to, handling, training and grooming animals.

4.12 Humane killing

Personnel allowed to kill animals should be suitably trained. All humane methods of killing animals require expertise, which can only be attained by appropriate training. Section 9.5 of the Guidance on the Operation of the Animals (Scientific Procedures) Act 1986 sets out the training requirements for those killing animals. Animals should be killed using a method as set out in Section 6 of the same Guidance.

Careful consideration should be given to the minimisation of stress both for the animals to be killed and for those around them. Where practicable and appropriate, killing should take place away from the immediate presence of other animals. Animals to be killed should be handled carefully to ensure that fear and anxiety are minimised as much as possible.

Careful consideration should also be given to the health and well-being of staff charged with undertaking this activity.

4.13 Records

Records of source, use, retrospective severity of procedures and final disposal of all animals bred, kept for breeding, or for subsequent supply for use in scientific procedures should be used not only for statistical purposes but, in conjunction with health and breeding records, can also be used as indicators of animal welfare and for husbandry and planning purposes.

4.14 Identification

In some instances, it is necessary for animals to be individually identified, for example, when being used for breeding purposes or scientific procedures, to enable accurate records to be kept. The method chosen should be reliable and cause the minimum pain and discomfort to the animal when applied and in the long term. Sedatives or local anaesthetics and analgesics should be used if necessary. Staff should be trained in carrying out the identification and marking techniques. For more information see the Guidance on the Operation of the Animals (Scientific Procedures) Act 1986.

4.15 Specific requirements of breeding animals

Housing restricts an animal's ability to exercise choice and, therefore, has to provide for as many of their needs as can reasonably be met. The environmental needs of breeding animals are likely to differ from those of stock and experimental animals for four main reasons.

1. Breeding animals typically have longer lives than those used in experiments and the female is exposed to the stresses of reproduction. Hence, particular attention needs to be given to designing an environment that takes account of the animal's behavioural as well as physiological needs.
2. Animals give birth during the time of the day when they are usually quiescent and will often seek or create a secure place for parturition and the raising of offspring; typically a nest or den in the case of rodents, cats, dogs and birds. Such behaviour is strongly motivated. The breeder should ensure that the animal's need for privacy is considered. This can be achieved by the provision of nesting material, nest boxes or a secluded and sheltered area within the pen or cage. Nesting material also allows the animal to partially control its own environment (e.g. noise, temperature and humidity). Given the means for controlling its own microenvironment, the appropriate range of room temperatures may be wider than would otherwise be the case.
3. In some species when breeding stock are housed in social groups, subordinates and females that have just given birth may be vulnerable to social stresses. Extra care should be taken to prevent and monitor aggression and to separate individuals if necessary. Single housing for social species should only be considered on animal health or welfare grounds, unless it is permitted by Project Licence authority. Objects can act as barriers within the pen and allow animals greater control over their social interactions.
4. The needs of infants are different from those of adults. For example, they may have differing space and temperature requirements from adult animals. An adequately complex social and physical environment during development is needed to produce normal adults.



Section 3, Chapter 4: Cats

This chapter must be read in conjunction with the *Introduction* and *Section 3 Chapter 1: Advice applicable to all animals*.

1 Environmental conditions

1.1 Ventilation

See Section 3 Chapter 1: Advice applicable to all animals.

1.2 Temperature

Cats may be maintained within a wide temperature range provided that their welfare is not compromised. A temperature range between 15°C and 21°C is suitable when precise control is required for cats under procedure (as determined by the investigator and justified as necessary). As kittens have limited thermoregulatory control for around the first ten days of life, it is recommended to provide additional local heating during this period. Where experimental protocols allow, a “basking area” provided by a heat lamp or radiator would provide environmental enrichment and allow animals some control over their environmental temperature.

1.3 Humidity

It is considered unnecessary to control relative humidity, as cats can be exposed to wide fluctuations of ambient relative humidity without adverse effects. However, recording humidity on a regular basis can be considered good practice in early identification of developing issues.

1.4 Lighting

Holding of cats under the natural 24-hour light-dark cycle is acceptable. Where the light part of the photoperiod is provided by artificial lighting, it is recommended that this is within a range of 10 to 12 hours daily.

If natural light is totally excluded, it is recommended that low-level night lighting (5 to 10 lux) is provided to allow cats to retain some vision and to take account of their startle reflex. Some light systems have been shown to be aversive to some animals, possibly because they may perceive light sources as flickering whereas humans do not. The photoperiod may be varied in cat colonies as a method of controlling the reproductive cycle.

1.5 Noise

The hearing range of cats is 0.07–91 kHz, with peak sensitivity 1–40 kHz. Unpredictable noises cause stress. Sound-absorbing materials or the use of background sound (such as radio music when played quietly) will help reduce the disturbance caused by husbandry-generated noise or other sudden, unexpected noises.

1.6 Alarm systems

See Section 3 Chapter 1: Advice applicable to all animals.

2 Health

See Section 3 Chapter 1: Advice applicable to all animals.



3 Housing, enrichment and care

3.1 Housing

As cats are territorial and become attached to particular locations they are likely to be stressed by relocation. Cats are excellent climbers and utilise raised structures (e.g. shelves) extensively, both as vantage points and, when housed in groups, to maintain a distance from other cats.

Female cats and neutered cats of both sexes are generally sociable and are commonly held in groups of up to 12 – wherever practicable cats should be housed in social groups. However, the establishment of groups of two or more cats requires careful monitoring for the compatibility of all the individuals in the group. Special care is needed when regrouping cats, introducing an unfamiliar cat to a group, housing un-neutered males in a group or maintaining cats in larger groups.

If a behaviour or welfare issue is detected or a risk, it is recommended that a system for monitoring social stress is initiated using an established behavioural and/or physiological stress scoring system. This is especially important for un-neutered males.

Where cats are normally group housed, single housing may be a significant stress factor. Where they must be housed singly – on animal health or welfare grounds, or where permitted by Project Licence authority – it is strongly recommended that they should be let out for exercise at least once a day where this does not interfere with procedures.⁴⁵

Females with kittens under four weeks of age or in the last two weeks of pregnancy may be housed singly. During this time, consideration should also be given to allowing females which are normally group housed to have access to their group e.g. by connecting kittening enclosures to the group housing animal enclosures.

It is advisable that enclosures, including the divisions between enclosures, provide a robust and easy-to-clean environment for the cats. It is advisable that their design and construction seeks to provide an open and light facility giving the cats comprehensive sight outside of their enclosure. The design of enclosures should ideally also provide an enclosed area out of view of other cats, while at the same time allowing for easy inspection of animals by staff.

It is strongly recommended that cats should never be forced to spend their entire lives outside and should always have access to an internal enclosure that meets all required standards. Outside runs do, however, provide an environmental enrichment opportunity for cats in both breeding and user establishments and should be provided where possible.

3.2 Enrichment

It is advisable that vertical wooden surfaces are provided to allow claw-sharpening and scent-marking. Raised, part-enclosed structures are recommended (e.g. a bed with three walls and a roof on a shelf approximately one metre off the floor) to give the cats a view of their surroundings and, if pair or group housed, the opportunity to maintain a comfortable distance from other cats. There should be a sufficient number of these structures to minimise competition. Structures should be distributed within the enclosure so that animals can fully use the three-dimensional space available.

Where females with kittens are confined within a cage environment, additional exercise is advisable for the queen on a daily basis with access to human social contact and ancillary play equipment. A usable shelf or solid nest box lid is recommended to permit the queen some personal space distant from the litter.

It is recommended that pseudo-predatory and play behaviour are encouraged. A selection of toys should ideally be available and these should be changed on a regular basis in order to ensure ongoing stimulation and avoid familiarity, which decreases the motivation to play. It is recommended that all cats have a period of play and general social interactions with humans on a daily basis, plus additional time for regular grooming. Particular attention should be paid to social enrichment for single-housed cats by providing additional human contact wherever practicable.

⁴⁵ See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.



3.3 Dimensions and flooring

The preferred flooring for cat enclosures is a solid continuous floor with a smooth non-slip finish. The provision of additional enclosure furniture will provide all cats with a comfortable resting place.

Open flooring systems such as grids or mesh should not be used for cats as they may cause injury to the animals.⁴⁶ Where there is compelling scientific justification and Project Licence authority for open flooring, great care should be taken in their design and construction in order to avoid pain, injury or disease and to allow the animals to manifest normal behaviours. Practical experience shows that metabolism cages are not always necessary as cats' urine and faeces can be collected directly from litter trays.

The quality and finish of the floor of an outside run need not be to the standard of the inside enclosure, providing it is easy to clean and not physically injurious to the cats.

Constraint in a space below the minimum requirement, such as in a metabolism cage, or any similar type of housing for scientific purposes, may severely compromise the welfare of the animals. Such constraint should be for the minimum time and within a space that is as close as possible to the minimum and no less than that required for the animal to stretch fully horizontally and vertically, to lie down and turn around.

Due consideration should be given to ensuring there is adequate separation between feeding, resting and litter tray areas.

3.4 Feeding

See Section 3 Chapter 1: Advice applicable to all animals.

3.5 Watering

See Section 3 Chapter 1: Advice applicable to all animals.

3.6 Substrate, litter, bedding and nesting material

An appropriate number and size of litter trays should be provided for the number of cats in the enclosure, and should contain a suitable depth of absorbent and non-toxic litter or substrate material that is acceptable to and used by the cats. If urine and faeces are regularly deposited outside the trays, additional trays containing alternative substrates may be required. The frequency of litter changing may also need to be increased. If this is ineffective in pair- or group-housed cats, social incompatibility may be the cause, and it is recommended that cats are removed from the group one at a time until the problem is resolved.

It is advisable that sufficient beds are provided for all cats and should be made of a suitable easy-to-clean material. Bedding materials such as polyester fleece or similar are recommended. Cats require sleeping areas that are quiet and warm and if kept in groups, cats should have the choice to sleep on their own. Cats also, when allowed to exhibit natural instincts, will often sleep at a height, so sleeping boxes may be hung on walls or at different heights especially in the corners of rooms where they cannot be approached from behind.

3.7 Cleaning

It is advisable that each occupied enclosure is cleaned at least daily. It is recommended that litter trays are emptied daily and litter material replaced. Cleaning of enclosures should not result in cats becoming wet. When enclosures are hosed down, it is advisable to remove the cats from the enclosure to a dry place and return them only when the enclosure is reasonably dry.

3.8 Handling

The domestic cat has a strong tendency to learn social behaviour. With appropriate socialisation provided at an early age, such behaviour can be expressed both to conspecifics and man.

⁴⁶ Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.3.



Good social interaction with humans encourages suitable temperament for subsequent studies. However, forming social relationships may be stressful. Visible signs that cats are stressed are not as straightforward to interpret as those in dogs.

In setting staff levels it is most important to take into account time for the important human social interactions required, especially for kittens and any single-housed animals.

For cats, close contact with the persons caring for them is crucial. Particular attention should be paid to single-housed cats by providing additional human contact.

The development of social behaviour in cats is profoundly affected by social experience between two and eight weeks of age. During this period it is particularly important that the cat has social contacts with other cats (e.g. littermates) and with humans and is familiarised with environmental conditions likely to be encountered during subsequent use. Daily handling during this sensitive stage of development is a prerequisite for the social behaviour of the adult cat and it has been shown that a short period of handling even on the first day after birth is of importance as the young animals are already able to respond to scent and tactile stimulation. The normal age for weaning is seven to nine weeks. Where possible socialisation should continue until kittens reach 14 weeks of age.

3.9 Humane killing

See Section 3 Chapter 1: Advice applicable to all animals.

3.10 Records

See Section 3 Chapter 1: Advice applicable to all animals.

3.11 Identification

All cats in a facility should be identified with a permanent and unique identification code before weaning. Individual animals can be identified visually by using properly fitted collars with attached medallions or tattoos. Tattoos are the least preferred method. Animals should be sedated for the purposes of tattooing and local or topical anaesthesia should be used; this will reduce stress in the animals and reduce the risk of injury to the handler. For some individuals general anaesthesia may be necessary – this should be judged on a case-by-case basis. Alternatively, the animal may be tattooed when anaesthetised for other purposes. Analgesia may be given before or after tattooing.

Microchips can be injected into accessible sites (usually the scruff of the neck). As it is important to be able easily to distinguish animals, some laboratories successfully use names for the animals. Ear notching or other mutilations are not considered appropriate methods.

The method of identification should be chosen with due consideration for the intended scientific use of the animal.



Section 3, Chapter 5: Dogs

This chapter must be read in conjunction with the *Introduction* and *Section 3 Chapter 1: Advice applicable to all animals*.

1 Environmental conditions

1.1 Ventilation

See Section 3 Chapter 1: Advice applicable to all animals.

1.2 Temperature

Dogs may be maintained within a wide temperature range provided that their welfare is not compromised. It is advisable to prepare suitable contingency plans to deal with extremes of temperature, seen occasionally in hot summers or cold winters, to ensure that a comfortable environment is maintained for the animals. A temperature range of approximately 15°C to 24°C (as determined by the investigator and justified as necessary) is appropriate when precise control is required for dogs under procedure. It is advisable to ensure that outdoor pens provide shelter against adverse weather conditions.

As puppies have limited thermoregulatory control in the first ten days or so of life, it is advisable to provide additional local heating within the whelping enclosure. New-born puppies require a local environmental temperature of 26–28°C for at least the first five to ten days of life.

1.3 Humidity

It is considered unnecessary to control relative humidity, as dogs can be exposed to wide fluctuations of ambient relative humidity without adverse effects.

1.4 Lighting

The holding of dogs under the natural 24-hour light-dark cycle is acceptable. Where the light part of the photoperiod is provided by artificial lighting, it is advisable for this to be within a range of 10 to 12 hours daily.

If natural light is totally excluded, the provision of low-level night lighting (5 to 10 lux) is recommended to allow dogs to retain some vision and to take account of their startle reflex.

1.5 Noise

Noise in dog kennels can reach high levels which are known to cause damage to humans, and which could affect dogs' health or physiology. For these reasons it is important to consider methods of reducing noise in dog facilities. By addressing the dogs' behavioural needs in the facility design, the level of vocalisation may be decreased. For example, socialisation and habituation of dogs to the presence of humans will reduce barking behaviour. Much of the noise is generated by the dogs' own vocalisations, but may also be generated by husbandry operations within the facility and ingress from outside sources. Consideration should therefore be given to limiting as far as possible any source of noise that may stimulate further dog barking. Penetration of external noise can be reduced by appropriate siting of the facility and by appropriate architectural design. Noise generated within the facility can be reduced by noise absorbent materials or structures. It is advisable to seek expert advice on noise reduction when designing or modifying dog accommodation.

1.6 Alarm systems

See Section 3 Chapter 1: Advice applicable to all animals.

2 Health

See Section 3 Chapter 1: Advice applicable to all animals.



3 Housing, enrichment and care

It is recommended that the number of staff is adequate to maintain the size of breeding colonies and good standards of husbandry and care. In setting staff levels it is most important to take into account the additional time for the essential human interactions required, especially with pups and single-housed animals.

3.1 Housing

The domestic dog is an inquisitive and highly social animal which actively seeks information about its surroundings. Although much of the day is spent resting, the dog requires a complex physical and social environment during the active phase.

As aggression is a significant risk, care is needed to maintain dogs in socially harmonious groups. The recommendations provided are for the beagle, the most commonly used breed. Account should be taken of individual breed characteristics if other breeds are used.

Dogs should be housed in socially harmonious groups within the animal enclosure, unless the scientific procedures or welfare requirements make this impossible. Special care is needed when regrouping dogs or introducing an unfamiliar dog to a group. In all cases, it is advisable to monitor groups for social compatibility on an ongoing basis.

Single housing of dogs for even short periods can be a significant stress factor. Where they must be housed singly – on animal health or welfare grounds, or where permitted by Project Licence authority⁴⁷ – additional human socialisation time, and visual, auditory and, where possible, tactile contact with other dogs is recommended on a daily basis. Unless contra-indicated on scientific grounds, single-housed dogs should be allowed to exercise in a separate area with other dogs if possible, and with staff supervision and interaction, on a daily basis. Long-term single housing and social isolation are closely associated with a range of behavioural disturbances and it is therefore advisable that it should only be used as an option of last resort for an aggressive dog, or in the case of the periparturient bitch.

Stud dogs should, wherever possible, be housed in socially harmonious pairs or groups or with bitches.

Bitches seek solitude in a quiet area for parturition and rearing of young. It is recommended that periparturient bitches are moved to the whelping enclosure approximately one to two weeks prior to expected parturition. It is recommended that while in the whelping enclosure they have additional daily human contact.

Consideration should be given to the provision of veterinary hospitalisation and isolation facilities. Where such facilities are below the space requirements outlined in this CoP or limit social contact with other dogs, the amount of time spent in them by dogs needing treatment should be restricted to the minimum necessary and used only as directed by a veterinary surgeon.

It is advisable that enclosures, including the divisions between enclosures, provide a robust and easy-to-clean environment for the dogs. Consideration should be given to ensuring that their design and construction provides an open and light facility, giving the dogs comprehensive sight of other dogs and staff outside of their immediate animal enclosure.

It is strongly recommended that dogs should never be forced to spend their entire lives outside and should at all times have access to an internal enclosure that meets all required standards.

3.2 Enrichment

Outside runs provide an environmental enrichment opportunity for dogs. The design of indoor and outdoor enclosures should ideally allow some privacy for the dogs and enable them to exercise some control over their social interactions.

It is advisable to provide separate areas for different activities. This can be achieved by, for example, inclusion of raised platforms and pen subdivisions. Subdivision of dog pens into separate sleeping and

⁴⁷ See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.



exercise areas is recommended. This provides some environmental complexity and allows the animal to defecate/urinate away from its sleeping area. Provision of platforms within pens offers several benefits – provided that they have sufficient height so as not to limit the floor area below – including increasing the complexity of pens, providing a viewpoint and sleeping/resting area for dogs on top of the platform and providing a retreat or sleeping area under the platform.

Dog treats and toys afford welfare benefits to the animals, providing these are used sensibly and adequately monitored. As chewing is an important behaviour, providing items which meet this need is strongly recommended.

The primary advantages of exercise are to allow additional opportunities for dogs to experience a complex and varied environment and to increase interaction with other dogs and humans. These will be particularly important where these needs cannot be fully met within the space provided by the animal enclosure. Therefore, unless contra-indicated on scientific or veterinary grounds, dogs should normally be removed to a separate area and allowed to exercise, with other dogs where possible, and with staff supervision and interaction, ideally on a daily basis.

3.3 Dimensions and flooring

It is advisable for pens to have sufficient depth to allow nervous dogs to retreat from the front of the pen.

Any further social or physical constraint, such as in a metabolism cage or physical restraint in a sling, may severely compromise the welfare of the animals. Constraint in a metabolism cage or any similar type of housing for scientific purposes should be within a space that is as close as possible to minimum standard, and no less than that required for the animal to stretch fully, lie down and turn around.

The preferred flooring for dog accommodation is a solid continuous floor with a smooth non-slip finish. All dogs should be provided with a comfortable, solid resting area, for example, by the use of enclosure furniture such as raised beds or platforms. Open flooring systems such as grids or mesh should never be used for routine housing for dogs as they may cause injury to the animals, and should not be used at all unless there is a compelling scientific justification and Project Licence authority.⁴⁸ Where it must be used, great care should be taken in the design and construction in order to avoid pain, injury or disease and to allow the animals to manifest normal behaviours. A solid resting area should always be provided. If any welfare problems do arise which are related to the flooring, veterinary advice should be sought and, if necessary, the dogs relocated onto solid flooring.

The quality and finish of the floor of an outside run need not be to the standard of the inside enclosure, providing it is easily cleanable and not injurious to the dogs.

3.4 Feeding

See Section 3 Chapter 1: Advice applicable to all animals.

3.5 Watering

See Section 3 Chapter 1: Advice applicable to all animals.

3.6 Substrate, litter, bedding and nesting material

When dogs are held on solid floors, some litter or substrate material facilitates cleaning and minimises the necessity for regular washing or hosing down. Periparturient and suckling bitches should be provided with a bed and bedding material to support whelping and the nursing of puppies. Puppies also benefit from the provision of bedding materials, as do the majority of adult dogs.

3.7 Cleaning

It is recommended to clean each occupied enclosure at least daily. It is advisable to remove all excreta and soiled materials from all areas used by dogs at least daily, and more frequently if necessary. Wet

⁴⁸ Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.3.



cleaning by hosing down of enclosures should be carried out as necessary but should not result in the dogs becoming wet. When enclosures are hosed down, it is advisable to remove the dogs from the enclosure to a dry place and return them only when it is reasonably dry.

3.8 Handling and socialisation

Social behaviour in dogs develops between 4 and 20 weeks of age. During this period it is particularly important that the dog has social contacts with littermates, adult dogs (e.g. the bitch) and with humans, and is familiarised with conditions likely to be encountered during subsequent use. Daily handling during this sensitive stage of development is a prerequisite for the social behaviour of the adult dog and it has been shown that a short period of handling, even from the first day after birth onwards, is of importance as the young animals are already able to respond to scent and tactile stimulation.

3.9 Humane killing

See Section 3 Chapter 1: Advice applicable to all animals.

3.10 Records

See Section 3 Chapter 1: Advice applicable to all animals.

3.11 Identification

All dogs in a facility should be identified with a permanent and unique identification code before weaning. Individual animals can be identified visually by using properly fitted collars with attached medallions or tattoos. Tattoos are the least preferred method. Animals should be sedated for the purposes of tattooing and local or topical anaesthesia should be used; this will reduce stress in the animals and reduce the risk of injury to the handler. For some individuals general anaesthesia may be necessary – this should be judged on a case-by-case basis. Alternatively, the animal may be tattooed when anaesthetised for other purposes. Analgesia may be given before or after tattooing.

Microchips can be injected into accessible sites (usually the scruff of the neck). As it is important to be able easily to distinguish animals, some laboratories successfully use names for the animals. Ear notching or other mutilations are not considered appropriate methods.

The method of identification should be chosen with due consideration for the intended scientific use of the animal.



Section 3, Chapter 6: Ferrets

This chapter must be read in conjunction with the *Introduction* and *Section 3 Chapter 1: Advice applicable to all animals*.

1 Environmental conditions

1.1 Ventilation

Adequate ventilation is important:

- to attenuate the animals' musk odour because of the impact it may have on the welfare of adjacent prey animal species, e.g. rodents;
- to minimise the risk of airborne respiratory diseases, to which the ferret is very susceptible.

1.2 Temperature

It is recommended to maintain ferrets in the temperature range of 15°C to 24°C. Ferrets do not have well-developed sweat glands, so to avoid heat exhaustion they should not be exposed to high temperatures.

1.3 Humidity

It is considered unnecessary to control or record relative humidity as ferrets can be exposed to wide fluctuations of ambient relative humidity without adverse effects. However, to minimise the occurrence of respiratory disease, it is recommended to avoid high humidity levels, especially if the temperature is low.

1.4 Lighting

It is considered good practice to ensure that the light source and type are not aversive to the animals. Particular care should be taken with ferrets in a tier racking system to ensure that animals in the top tier are not exposed directly to high intensity lighting. This is of particular concern with albino animals.

If natural light is totally excluded, it is recommended that low-level night lighting is provided to allow animals to retain some vision and to take account of their startle reflex. Holding of ferrets under the natural 24-hour light-dark cycle is acceptable. Where the light part of the photoperiod is provided by artificial lighting, it is recommended that this is a minimum of 8 hours and should generally not exceed 16 hours in any 24-hour period.

However, it should be noted that for the manipulation of the reproductive cycle variation in the light-dark cycles is necessary. For example, the light part of the photoperiod may be reduced to 6 hours and then increased up to 15 hours to stimulate oestrus in the female. The male requires opposite light cycles to the female to stimulate its season. Manipulation of the light cycle for males should commence several months before mating is required to ensure sperm maturity.

1.5 Noise

Lack of sound or auditory stimulation can be detrimental and make ferrets nervous. A soft and varied background noise may stimulate the sensory and social development of the young ferret. However, loud unfamiliar noise and vibration have been reported to cause stress-related disorders in ferrets and should be avoided where possible. It is important to consider methods of reducing sudden or unfamiliar noise in ferret facilities, including that generated by husbandry operations within the facility and also by ingress from outside sources. Ingress of noise can be controlled by appropriate siting of the facility and by appropriate architectural design. Noise generated within the facility can be controlled by noise absorbent materials or structures. It is advisable to seek expert advice when designing or modifying accommodation.

1.6 Alarm systems

See Section 3 Chapter 1: Advice applicable to all animals.



2 Health

See Section 3 Chapter 1: Advice applicable to all animals.

3 Housing, enrichment and care

The social behaviour of ferrets should be taken into account when housing animals. Regular interaction with other ferrets through group housing and regular confident handling by care staff should be encouraged as it results in better quality and more sociable animals.

Consideration should be given to the fact that the ferret is an intelligent, inquisitive, playful and agile animal, when designing the accommodation and when handling the animals. A complex, escape-proof enclosure is required. The ferret enjoys climbing and height provides some enrichment in itself.

3.1 Housing

Although the ferret's wild ancestors are generally solitary, there seem to be welfare benefits to housing ferrets in socially harmonious groups in captivity. Therefore, unless there is justification for singly housing them – on animal health or welfare grounds, or unless permitted by Project Licence authority – ferrets should be kept in socially harmonious groups.⁴⁹

When animals *are* single housed it is advisable to target additional resources to the welfare and care of these animals. Additional human socialisation time, and visual, auditory and, where possible, tactile contact with other ferrets is advisable for all single-housed animals on a daily basis.

Separation of animals that are normally group housed can be a significant stress factor. Where this is for a period of more than 24 hours it should be regarded as significantly compromising the welfare of the animals. Unless this is for animal health or welfare reasons, Project Licence authority is likely to be required. Constraint in less than minimum space requirements for scientific purposes, such as in a metabolism cage, may significantly compromise the welfare of the animals and is also likely to require Project Licence authority.

However, there are valid health and welfare reasons why single housing may be justified and required: ferrets usually breed once a year, mating in the spring. Male animals are hostile to, and will fight vigorously with, unfamiliar males during the breeding season. As a consequence, single housing of adult males may prove necessary at this time to avoid fighting and injury. However, males can be maintained successfully in groups at other times. It is recommended that pregnant females are housed singly only during late pregnancy, no more than two weeks prior to parturition.

Consideration should be given to the animals' species- and breed-specific needs when designing the enclosure. It should ideally be adaptable so that innovation based on new understanding may be incorporated. It is recommended that the enclosures are rectangular rather than square, to better facilitate locomotor activities.

During the design of the enclosure consideration should be given to the ferret's remarkable ability to escape. It should ideally be such that the animal is unable to escape or to injure itself should any such attempt be made. Their design and construction should seek to provide an open and light facility giving the ferrets comprehensive sight of other ferrets and staff, outside of their immediate animal enclosure. There should also ideally be provision for the ferrets to seek refuge and privacy within their own enclosure and, in particular, away from the sight of ferrets in other enclosures, enabling them to exercise some control over their social interactions.

Additional enclosure furniture such as beds or platforms is recommended to ensure the provision of all ferrets with a warm and comfortable resting place.

3.2 Enrichment

A complex enclosure provides opportunities for the ferret to exhibit a wide behavioural repertoire.

⁴⁹ See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.



Ferrets normally live in burrows, and thus in captivity they appreciate the provision of materials to stimulate both investigative and play behaviour. For example, tubes of cardboard or rigid plastic, paper bags into which they can crawl and play games are recommended. Water baths and bowls are also used extensively by ferrets.

The social housing of ferrets enriches the animals' environment and holding ferrets in large and socially harmonious groups increases the available floor space as well as enhancing socialisation opportunities.

Social behaviour in ferrets develops at an early age and it is important that the young ferret has social contacts with other ferrets (e.g. littermates) and with humans. Daily handling during this sensitive stage of development is a prerequisite for the social behaviour of the adult ferret. It is reported that the more frequent the interaction, the more placid the animal will become, and it is recommended that this interaction is continued through into adult life.

3.3 Dimensions and flooring

It is recommended that separate areas for different activities, such as by raised platforms and pen subdivisions, are provided in addition to the minimum floor space. It is advisable that the design of the floor space provides an adequate area for movement and allows the animal the opportunity to select sleeping, eating and urination/defecation areas.

Recommended flooring for ferret accommodation is a solid continuous floor with a smooth non-slip finish. Open flooring systems such as grids or mesh should not be used for ferrets as they may cause injury to the animals.⁵⁰

3.4 Feeding

Ferrets are obligate carnivores, feeding on small mammals, birds, fish and invertebrates. The ferret has a particular requirement for a high level of animal protein and fat, with little requirement for dietary fibre. Therefore ferrets can become protein-deficient if fed diets which have a high proportion of carbohydrates.

3.5 Watering

See Section 3 Chapter 1: Advice applicable to all animals.

3.6 Substrate, litter, bedding and nesting material

The ferret in captivity requires a dry, warm sleeping chamber, discrete eating and food storage areas and a vertical surface for scent-marking well away from sleeping and eating areas. Nest boxes and/or plenty of nesting material should be provided and should be sufficient to contain the young ferrets within the nest. Care is needed in the choice of nesting material to avoid damage to young at birth such as desiccation or damage to the umbilical vessels.

Bedding material is required for all ferrets. In addition, hay, straw or paper are recommended as suitable nesting materials. Deep litter systems are considered to provide additional enrichment.

It is good practice to use some litter or substrate material at least to facilitate cleaning and minimise the necessity to wash/hose down regularly.

3.7 Cleaning

Consideration should be given to the need for animal enclosures, including the divisions between enclosures, to provide an easy-to-clean and robust environment for the ferrets.

It is considered good practice that wet cleaning by hosing down of animal enclosures does not result in ferrets becoming wet. When animal enclosures are hosed down, the ferrets should therefore ideally be removed from the enclosure to a dry place and returned only when it is reasonably dry.

⁵⁰ Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.3.



Ferrets tend to defecate against a vertical surface in one area of the enclosure. Provision of a litter tray may be beneficial and reduce the frequency of cleaning required for the remainder of the enclosure.

It is recommended that all excreta and soiled materials are removed at least daily, and more frequently if necessary, from litter trays and/or removed from all other areas used by the animals as a toilet.

Frequency of cleaning of the remainder of the enclosure should be determined according to factors such as stocking density, enclosure design and stage in the reproductive cycle.

3.8 Handling

See Section 3 Chapter 1: Advice applicable to all animals.

3.9 Humane killing

See Section 3 Chapter 1: Advice applicable to all animals.

3.10 Records

See Section 3 Chapter 1: Advice applicable to all animals.

3.11 Identification

The preferred method of permanent identification is by microchipping. Animals can also be recognised by their faces as their colour and masks are distinctive. The use of coat dyes for albino animals may also be a suitable method of identification. Collars (as for cats) should be used with care as their neck and head circumferences are very similar, and collars may have to be unacceptably tight to reliably remain in place. Ear tattooing and ear tags are not considered to be suitable.

3.12 Considerations for breeding ferrets

As breeding can have a considerable impact on bodyweight and condition, it is strongly recommended that jills are assessed for continued suitability for mating in consultation with a veterinary surgeon. It is advisable not to mate females before nine months of age.

Mating can be a prolonged and noisy affair, and can result in injury to the female (particularly neck injuries). Therefore, careful monitoring for injuries is important, as is seeking veterinary advice if/when they occur. It is recommended that mating takes place in a separate room to those animals with litters, as the disturbance can lead to cannibalism.

It is recommended that animals are not weaned before six weeks of age, unless there are good veterinary or husbandry reasons.