

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

**Rodents and Rabbits**



**December 2014**



© Crown copyright 2014

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](http://nationalarchives.gov.uk/doc/open-government-licence/version/3) or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk).

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at [www.gov.uk/government/publications](http://www.gov.uk/government/publications)

Any enquiries regarding this publication should be sent to us at [ASRUBusinessSupport@HomeOffice.gsi.gov.uk](mailto:ASRUBusinessSupport@HomeOffice.gsi.gov.uk)

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

Print ISBN 9781474112390

Web ISBN 9781474112406

ID 19111403 12/14 44389

## 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.<sup>1,2</sup> It sets out changes to legal minimum standards applicable from 1 January 2017.<sup>3</sup> Section 3 provides additional advice derived from Commission Recommendation 2007/526/EC<sup>4</sup> 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 animals<sup>5</sup> held at the establishment that will be, are being or have been used for a licensed purpose.<sup>6</sup>

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,<sup>7</sup> but retains higher UK CoP standards in force prior to 2010,<sup>8,9</sup> 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,<sup>10</sup> but retain higher UK CoP standards in force prior to 2010<sup>11,12</sup> 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/EC<sup>13</sup> (“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<sup>14,15</sup> 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:<sup>16</sup>

<b>Breeding animals</b>	Protected animals <sup>17</sup> 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. <sup>18</sup>
<b>Supply animals</b>	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.
<b>Use animals</b>	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.

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

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

<sup>18</sup> 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 husbandry<sup>19</sup> 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.

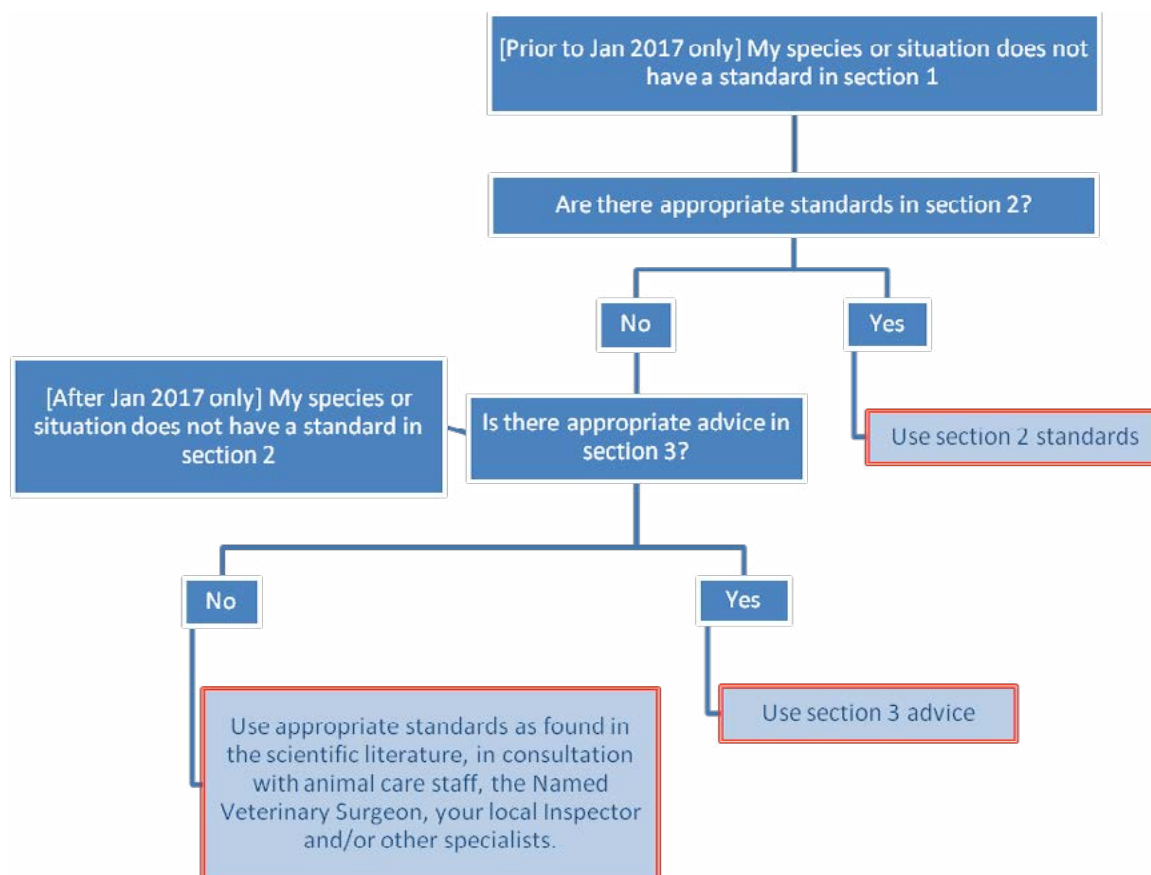
<sup>19</sup> "Recognised animal husbandry" refers to techniques currently widely practised in the UK. Such techniques will be found in literature such as the Defra Codes of Recommendation for the Welfare of Livestock, the RSPCA Research Animals Team's Guidance Notes (<http://science.rspca.org.uk/sciencegroup/researchanimals/ethicalreview/functionstasks/housingandcare>) 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.<sup>20</sup> 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.



<sup>20</sup> 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](mailto:ASRUBusinessSupport@HomeOffice.gsi.gov.uk).



## Glossary

<b>Animals in Science Committee (ASC)</b>	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.
<b>AWERB</b>	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.
<b>Body condition</b>	See condition scoring.
<b>Brooder lamp</b>	A heat lamp with a controllable or known temperature output.
<b>Condition scoring</b>	An objective system of evaluating an animal's body condition (amount of stored fat) and assigning a numeric value.
<b>Conspecifics</b>	Belonging to the same biological species.
<b>Cubicle</b>	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.
<b>Enclosure</b>	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.
<b>Environmental enrichment</b>	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.
<b>Establishment</b>	A place holding a licence that has been granted under section 2C of ASPA.
<b>Establishment Licence (PEL)</b>	A licence granted to a place under section 2C of ASPA.
<b>Fill and dump system</b>	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.
<b>Filter top cage</b>	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.
<b>Floor area</b>	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.
<b>Flow system</b>	A continuous matched top up and outflow of water in and out of tanks in order to keep the aquatic environment healthy.
<b>Group housed</b>	Housed as two or more animals within the same enclosure.
<b>Harem (guinea pig)</b>	A group of guinea pigs – typically one male with one to ten females.
<b>Headweaving</b>	A stereotypical behaviour where the animal repeatedly moves its head from side to side, while keeping its body relatively still.
<b>Health status</b>	The presence or absence of infectious or non-infectious disease or abnormality in an individual or population.

<b>Height</b>	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.
<b>Holding room</b>	Secondary accommodation in which the animal enclosure(s) may be located, as specified in the schedule of premises of the Establishment Licence.
<b>Inspector</b>	An inspector in the Animals in Science Regulation Unit appointed under ASPA section 18.
<b>Isolator</b>	A device that creates a barrier in order to maintain an internal condition (e.g. sterile or aseptic).
<b>IVC</b>	Individually ventilated cage. A sealed cage unit attached to a dedicated air-handling system.
<b>Mismothering</b>	Failure of maternal behaviour that places the offspring at increased risk of suffering and/or harm.
<b>NACWO</b>	Named Animal Care and Welfare Officer.
<b>Named Veterinary Surgeon (NVS)</b>	A member of the Royal College of Veterinary Surgeons, specified by the Establishment, to advise on the health, welfare and treatment of the animals.
<b>Open-water systems</b>	Enclosures within a larger body of water, for example a pond, lake, river or the sea.
<b>Pen</b>	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.
<b>Pet animal</b>	An animal kept by a human as a source of companionship or pleasure.
<b>POLE</b>	Place Other than a Licensed Establishment.
<b>Post-weaned stock</b>	Young animals that have been weaned from the dam being kept for a licensed purpose.
<b>Procedure</b>	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.
<b>Procedure room</b>	A room allocated for use for sterile and/or non-sterile procedures as specified in the schedule of premises of the Establishment Licence.
<b>Production indices</b>	Measurements of animal growth and production (e.g. milk production).
<b>Project Licence (PPL)</b>	A licence granted under section 5 of ASPA.
<b>Protocol</b>	A series of experimental steps defined in the Project Licence (PPL).
<b>Re-use</b>	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.
<b>Rooting</b>	The natural behaviour of pigs and other animals to turn over soil or litter with their noses in search of edible matter.

<b>Service room</b>	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.
<b>Single housed</b>	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.
<b>Stud animal</b>	An animal used for breeding only.
<b>Supplying</b>	Selling or passing on animals for a purpose regulated under ASPA.
<b>Using</b>	Using an animal for a purpose regulated under ASPA.
<b>Wild animal</b>	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.<sup>21</sup> These checks shall ensure that all sick or injured animals are identified and appropriate action is taken.

---

<sup>21</sup> 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 allowed<sup>22</sup> 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.

<sup>22</sup> 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 2: Mice, rats, gerbils, hamsters and guinea pigs

### 1 Mice

#### 1.1 Accommodation specifications

##### 1.1.1 Breeders including litters

###### Breeding animals

Table 1-2-1

will be replaced by table 2-2-1

	Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
Monogamous pair (outbred/inbred) or trio (inbred)	300	12

For each additional female plus litter an additional 180 cm<sup>2</sup> shall be added.

##### 1.1.2 Post-weaned stock

###### Breeding animals, supply animals

Table 1-2-2

will be replaced by tables 2-2-2 and 2-2-3

Weight of animal (g)	Minimum floor area for one or more mice (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<20	200	30	12
20-25	200	45	12
25-30	200	60	12
>30	200	100	12

##### 1.1.3 Mice being used in procedures

###### Use animals

Table 1-2-3

will be replaced by table 2-2-4

Weight of animal (g)	Minimum floor area for one or more mice (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<30	200	60	12
>30	200	100	12

### 2 Rats

#### 2.1 Accommodation specifications

##### 2.1.1 Mother and litter or monogamous pair and litter

###### Breeding animals

Table 1-2-4

will be replaced by table 2-2-5

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
900	18



### 2.1.2 Post-weaned stock

#### Breeding animals, supply animals

Table 1-2-5

will be replaced by tables 2-2-6 and 2-2-7

Weight of animal (g)	Minimum floor area for one or more rats (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<100	500	75	18
100-150	500	100	18
150-250	500	150	18
250-350	700	250	20
350-450	700	300	20
450-550	700	350	20
>550	800	400	20

### 2.1.3 Rats being used in procedures

#### Use animals

Table 1-2-6

will be replaced by table 2-2-8

Weight of animal (g)	Minimum floor area for one or more rats (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<50	500	100	18
50-150	500	150	18
150-250	500	200	18
250-350	700	250	20
350-450	700	300	20
450-550	700	350	20
>550	800	400	20

## 3 Gerbils

### 3.1 Accommodation specifications

#### 3.1.1 Monogamous breeding pair or trio including litters

#### Breeding animals

Table 1-2-7

will be replaced by table 2-2-9

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
900	20

For each additional female plus litter an additional 300cm<sup>2</sup> should be provided.



### 3.1.2 Post-weaned stock

#### Breeding animals, supply animals

Table 1-2-8

will be replaced by table 2-2-10

Weight of animal (g)	Minimum floor area for one or more gerbils (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<30	500	60	20
30-50	500	100	20
>50	500	150	20

### 3.1.3 Gerbils being used in procedures

#### Use animals

Table 1-2-9

will be replaced by table 2-2-11

Weight of animal (g)	Minimum floor area for one or more gerbils (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<50	500	100	18
50-150	500	150	18
150-250	500	200	18
250-350	700	250	20
350-450	700	300	20
450-550	700	350	20
>550	800	400	20

## 4 Hamsters

### 4.1 Accommodation specifications

#### 4.1.1 Mother and litter or monogamous breeding pair and litter

#### Breeding animals

Table 1-2-10

will be replaced by table 2-2-12

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
650	15

#### 4.1.2 Post-weaned stock

#### Breeding animals, supply animals

Table 1-2-11

will be replaced by tables 2-2-13 and 2-2-14

Weight of animal (g)	Minimum floor area for one or more hamsters (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<60	300	80	15
60-90	300	100	15
90-120	300	120	15
>120	300	165	15



### 4.1.3 Hamsters being used in procedures

#### Use animals

Table 1-2-12

will be replaced by table 2-2-15

Weight of animal (g)	Minimum floor area for one or more hamsters (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<60	300	80	15
60-90	300	100	15
90-120	300	120	15
>120	300	165	15

## 5 Guinea pigs

### 5.1 Accommodation specifications

#### 5.1.1 Breeding pair

#### Breeding animals

Table 1-2-13

will be replaced by table 2-2-16

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
1500	23

#### 5.1.2 Per female in a harem

#### Breeding animals

Table 1-2-14

will be replaced by table 2-2-16

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
1000	23

#### 5.1.3 Stock and Harems (group housed)

#### Breeding animals, supply animals

Table 1-2-15

will be replaced by table 2-2-17

Weight of animal (g)	Minimum floor area for one or more guinea pigs (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<150	700	200	20
150-250	700	300	20
250-350	700	400	20
350-450	700	500	23
450-550	700	600	23
>550	700	700	23





### 5.1.4 Guinea pigs being used in procedures

#### Use animals

Table 1-2-16

will be replaced by table 2-2-17

Weight of animal (g)	Minimum floor area for one or more guinea pigs (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<150	700	200	20
150-250	700	300	20
250-350	900	400	20
350-450	900	500	23
450-550	900	600	23
550-650	1000	700	23
>650	1250	750	23



## Section 1, Chapter 3: Rabbits

### 1 Accommodation specifications

A raised area shall be provided within the enclosure. This raised area must allow the animal to lie and sit and easily move underneath, and shall not cover more than 40% of the floor space. When for scientific or veterinary reasons a raised area cannot be used, the enclosure shall be 33% larger for a single rabbit and 60% larger for two rabbits. Where a raised area is provided for rabbits of less than ten weeks of age, the size of the raised area shall be at least 55cm by 25cm and the height above the floor shall be such that the animals can make use of it.

#### 1.1 Doe plus litter

**Breeding animals**

Table 1-3-1

will be replaced by table 2-3-1

Weight of animal (kg)	Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
<3.0	4000	45
>3.0	6400	45

#### 1.2 Breeding animals and post-weaned stock

**Breeding animals, supply animals**

Table 1-3-2

will be replaced by tables 2-3-2, 2-3-3 and 2-3-6

Weight of animal (kg)	Minimum floor area for one or more rabbits (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
up to 2.0	2000	1500	40
2.0-2.5	3000	2000	45
2.5-3.0	3000	2500	45
3.0-3.5	4000	3000	45
3.5-4.0	4000	4000	45
4.0-6.0	5400	5400	45
over 6.0	6000	6000	45

#### 1.3 Rabbits being used in procedures

**Use animals**

Table 1-3-3

will be replaced by tables 2-3-4 and 2-3-7

Weight of animal (kg)	Minimum floor area for one or more rabbits (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
up to 2.0	2000	1300	40
2.0-4.0	4000	2600	45
4.0-6.0	5400	3300	45
over 6.0	6000	4000	45

## 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.<sup>23</sup> These checks shall ensure that all sick or injured animals are identified and appropriate action is taken.

---

<sup>23</sup> 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 allowed<sup>24</sup> 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.

<sup>24</sup> 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 2: Mice, rats, gerbils, hamsters and guinea pigs

In this chapter “cage height” means the vertical distance between the cage floor and the top of the enclosure and this height applies over more than 50% of the minimum floor area prior to the addition of enrichment devices.

### 1 Mice

#### 1.1 Accommodation specifications

##### 1.1.1 Breeders including litters

**Breeding animals**

Table 2-2-1

replaces table 1-2-1

	Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
Monogamous pair (outbred/inbred) or trio (inbred)	330	12

For each additional female plus litter an additional 180 cm<sup>2</sup> shall be added.

##### 1.1.2 Post-weaned stock

**Breeding animals, supply animals**

Table 2-2-2

replaces table 1-2-2

Weight of animal (g)	Minimum floor area for one or more mice (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<20	330	60	12
20-25	330	70	12
25-30	330	80	12
>30	330	100	12

Table 2-2-3

adds to table 1-2-2

Weight of animal (g)	Minimum floor area for one or more mice (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<20*	950	40	12
<20*	1500	30	12

\*Post-weaned mice under 20 g may be kept at these higher stocking densities for the short period after weaning until issue, provided that the animals are housed in larger enclosures with adequate enrichment, and these housing conditions do not cause any welfare deficit such as increased levels of aggression, morbidity or mortality, stereotypes and other behavioural deficits, weight loss, or other physiological or behavioural stress response.



### 1.1.3 Mice being used in procedures

#### Use animals

Table 2-2-4

replaces table 1-2-3

Weight of animal (g)	Minimum floor area for one or more mice (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<20	330	60	12
20-25	330	70	12
25-30	330	80	12
>30	330	100	12

## 2 Rats

### 2.1 Accommodation specifications

#### 2.1.1 Mother and litter

#### Breeding animals

Table 2-2-5

replaces table 1-2-4

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
900	18

For each additional adult animal permanently added to the enclosure add 400 cm<sup>2</sup>.

#### 2.1.2 Post-weaned stock

#### Breeding animals, supply animals

Table 2-2-6

replaces table 1-2-5

Weight of animal (g)	Minimum floor area for one or more rats (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<20	330	60	12
<200	800	200	18
200-250	800	250	18
250-300	800	250	20
300-400	800	350	20
400-600	800	450	20
>600	1500	600	20





Table 2-2-7

adds to table 1-2-5

Weight of animal (g)	Minimum floor area for one or more rats (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<50*	1500	100	18
50-100*	1500	125	18
100-150*	1500	150	18
150-200*	1500	175	18
<100*	2500	100	18
100-150*	2500	125	18
150-200*	2500	150	18

\*Post-weaned rats may be kept at these higher stocking densities for the short period after weaning until issue, provided that the animals are housed in larger enclosures with adequate enrichment, and these housing conditions do not cause any welfare deficit such as increased levels of aggression, morbidity or mortality, stereotypes and other behavioural deficits, weight loss, or other physiological or behavioural stress response.

### 2.1.3 Rats being used in procedures

Use animals

Table 2-2-8

replaces table 1-2-6

Weight of animal (g)	Minimum floor area for one or more rats (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<200	800	200	18
200-250	800	250	18
250-300	800	250	20
300-400	800	350	20
400-600	800	450	20
>600	1500	600	20

In long-term studies, if space allowances per individual animal fall below those indicated above towards the end of such studies, priority shall be given to maintaining stable social structures.

## 3 Gerbils

### 3.1 Accommodation specifications

#### 3.1.1 Monogamous breeding pair or trio including litters

Breeding animals

Table 2-2-9

replaces table 1-2-7

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
1200	20



### 3.1.2 Post-weaned stock

#### Breeding animals, supply animals

Table 2-2-10

replaces table 1-2-8

Weight of animal (g)	Minimum floor area for one or more gerbils (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<40	1200	150	20
>40	1200	250	20

### 3.1.3 Gerbils being used in procedures

#### Use animals

Table 2-2-11

replaces table 1-2-9

Weight of animal (g)	Minimum floor area for one or more gerbils (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<40	1200	150	18
>40	1200	250	18

## 4 Hamsters

### 4.1 Accommodation specifications

#### 4.1.1 Mother and litter or monogamous breeding pair and litter

#### Breeding animals

Table 2-2-12

replaces table 1-2-10

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
800	15

#### 4.1.2 Post-weaned stock

#### Breeding animals, supply animals

Table 2-2-13

replaces table 1-2-11

Weight of animal (g)	Minimum floor area for one or more hamsters (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<60	800	150	15
60-100	800	200	15
>100	800	250	15

Table 2-2-14

adds to table 1-2-11

Weight of animal (g)	Minimum floor area for one or more hamsters (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<60*	1500	100	15

\*Post-weaned hamsters may be kept at these higher stocking densities for the short period after weaning until issue, provided that the animals are housed in larger enclosures with adequate enrichment, and these housing conditions do not cause any welfare deficit such as increased levels of aggression, morbidity or mortality, stereotypes and other behavioural deficits, weight loss, or other physiological or behavioural stress response.



### 4.1.3 Hamsters being used in procedures

#### Use animals

Table 2-2-15

replaces table 1-2-12

Weight of animal (g)	Minimum floor area for one or more hamsters (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<60	800	150	15
60-100	800	200	15
>100	800	250	15

## 5 Guinea pigs

### 5.1 Accommodation specifications

#### 5.1.1 Breeding pair with litter

#### Breeding animals

Table 2-2-16

replaces tables 1-2-13 and 1-2-14

Minimum floor area (cm <sup>2</sup> )	Minimum cage height (cm)
2500	23

For each additional breeding female add 1000 cm<sup>2</sup>.

#### 5.1.2 Post-weaned stock and guinea pigs being used in procedures

#### All animals

Table 2-2-17

replaces tables 1-2-15 and 1-2-16

Weight of animal (g)	Minimum floor area for one or more guinea pigs (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
<150	1800	200	23
150-200	1800	300*	23
200-250	1800	350	23
250-300	1800	400**	23
300-450	1800	500	23
450-650	2500	700	23
650-700	2500	750**	23
>700	2500	900	23

\* Where a shelf is provided for guinea pigs that are use animals or use stock animals, for the purpose of calculating the minimum floor area, up to 100 cm<sup>2</sup> of the shelf area per animal may be included where there is adequate height for the animal above and below the shelf.

\*\* Where a shelf is provided for guinea pigs that are use animals or use stock animals, for the purpose of calculating the minimum floor area, up to 50 cm<sup>2</sup> of the shelf area per animal may be included where there is adequate height for the animal above and below the shelf.



## Section 2, Chapter 3: Rabbits

### 1 Accommodation specifications

A raised area shall be provided within the enclosure for all rabbits. This raised area must allow the animal to lie and sit and easily move underneath, and shall not cover more than 40% of the floor space.

When for scientific, animal welfare or animal health reasons a raised area cannot be used (and licence authorisation has been granted), the enclosure shall be 33% larger for a single rabbit and 60% larger for two rabbits.

Where a raised area is provided for rabbits of less than ten weeks of age, the size of the raised area shall be at least 55 cm by 25 cm and the height above the floor shall be such that the animals can make use of it.

These requirements have been taken into account in calculating the dimensions provided in the tables below.

#### 1.1 Doe plus litter

##### Breeding animals

Table 2-3-1

will replace table 1-3-1

Weight of doe (kg)	Minimum total floor area – with nest box (cm <sup>2</sup> )*	Minimum total floor area – no nest box (cm <sup>2</sup> )**	Minimum cage height (cm)
<3.0	4500	4000	45
3.0-5.0	6400	6400	45
>5.0	6800	6400	60

\*These measurements are to be used where a nest box is provided. If the nest box is outside the cage, the total floor area equals the floor area of the cage plus the floor area of the nest box. If the nest box is within the cage the total floor area equals the floor area of the cage. There are no minimum dimensions specified for nest boxes.

\*\*These measurements to be used where there is no nest box provided; they are derived from the amalgamation of Directive 2010/63/EU Annex III standards with retained higher UK standards in existence prior to 2010.

#### 1.2 Rabbits less than ten weeks of age

##### Breeding animals, supply animals

Table 2-3-2

will replace table 1-3-2

Age (weeks)	Minimum floor area for one or more rabbits (cm <sup>2</sup> )	Minimum floor area per group housed animal (cm <sup>2</sup> )	Minimum cage height (cm)
weaning to 7	4000	1500	40
7-10	4000	1500 or 2000*	40 or 45**

\*For rabbits over 2 kg the minimum floor area per animal shall be 2000 cm<sup>2</sup>.

\*\*For rabbits over 2 kg the minimum height shall be 45 cm.



### 1.3 Rabbits over ten weeks of age with a raised area within the cage or pen

#### Breeding animals, supply animals

Table 2-3-2

will replace table 1-3-2

Final body weight (kg)	Minimum floor area for one animal (cm <sup>2</sup> )	Minimum floor area for two socially harmonious animals (cm <sup>2</sup> )	Minimum floor area for three socially harmonious animals (cm <sup>2</sup> )	Minimum additional floor area per rabbit (cm <sup>2</sup> ) 4 to 6 rabbits	Minimum additional floor area per rabbit (cm <sup>2</sup> ) > 6 rabbits	Minimum cage height (cm)
<2.0	3500	3500	6500	3000	2500	45
2.0-2.5	3500	4000	6500	3000	2500	45
2.5-3.0	3500	5000	7500	2500 or 3000*	2500	45
3.0-3.5	4200	6000	9000	3000	3000	45
3.5-4.0	4200	8000	12000	4000	4000	45
4.0-5.0	5400	10800	16200	5400	5400	45
5.0-6.0	5400	10800	16200	5400	5400	60
>6.0	6000	12000	18000	6000	6000	60

\*For the fourth and fifth rabbits 2500 cm<sup>2</sup>; for the sixth rabbit 3000 cm<sup>2</sup>.

#### Use animals

Table 2-3-4

will replace table 1-3-3

Final body weight (kg)	Minimum floor area for one animal (cm <sup>2</sup> )	Minimum floor area for two socially harmonious animals (cm <sup>2</sup> )	Minimum floor area for three socially harmonious animals (cm <sup>2</sup> )	Minimum additional floor area per rabbit (cm <sup>2</sup> ) 4 to 6 rabbits	Minimum additional floor area per rabbit (cm <sup>2</sup> ) > 6 rabbits	Minimum cage height (cm)
<2.0	3500	3500	6500	3000	2500	45
2.0-3.0	4000*(500)	5200* (1486)	7800* (1300)	3000	2600** (100)	45
3.0-4.0	4200	5200* (1000)	7800* (600)	3000	2600** (100)	45
4.0-5.0	5400*(1200)	6600* (1886)	9900* (2700)	3300** (300)	3300** (800)	45
5.0-6.0	5400	6600* (1200)	9900* (1500)	3300** (300)	3300** (800)	60
>6.0	6000* (600)	8000* (2286)	12000* (3429)	4000* (1143 or 1029 or 1000***)	4000 (1400 or 1143***)	60

\*For rabbits that are use animals, for the purpose of calculating the minimum floor area, an area of the raised area provided up to the figure in parentheses may be included.

\*\*For rabbits that are use animals, for the purpose of calculating the minimum additional floor area per animal, an additional area of the raised area provided of up to the figure in parentheses may be included.

\*\*\*The actual additional areas (cm<sup>2</sup>) are: for the fourth animal 1143; for the fifth animal 1029; for the sixth animal 1000; for the seventh animal 1400 and thereafter 1143.



## 1.4 Optimum dimensions for raised areas referred to in tables 2-3-3 and 2-3-4

Table 2-3-5

these are new standards

Final body weight (kg)	Optimum size (cm <sup>2</sup> )	Optimum height from the enclosure floor (cm)
<3.0	55 x 25	25
3.0-5.0	55 x 30	25
>5.0	60 x 35	30

## 1.5 Rabbits over ten weeks of age with no raised area within the cage or pen

Breeding animals, supply animals

Table 2-3-6

will replace table 1-3-2

Final body weight (kg)	Minimum floor area for one animal (cm <sup>2</sup> )	Minimum floor area for two socially harmonious animals (cm <sup>2</sup> )	Minimum floor area for three socially harmonious animals (cm <sup>2</sup> )	Minimum additional floor area per rabbit (cm <sup>2</sup> ) 4 to 6 rabbits	Minimum additional floor area per rabbit (cm <sup>2</sup> ) > 6 rabbits	Minimum cage height (cm)
<3	4655	5600	8600	3000	2500	45
3.0-3.5	5586	6720	9720	3000	2500 or 2780 or 3000*	45
3.5-4.0	5586	8000	12000	4000	4000	45
4.0-5.0	5586	10800	16200	5400	5400	45
5.0-6.0	7128	10800	16200	5400	5400	60
>6.0	7182	12000	18000	6000	6000	60

\*For the seventh rabbit 2500 cm<sup>2</sup>; for the eighth rabbit 2780 cm<sup>2</sup>; thereafter 3000 cm<sup>2</sup>.

Use animals

Table 2-3-7

will replace table 1-3-3

Final body weight (kg)	Minimum floor area for one animal (cm <sup>2</sup> )	Minimum floor area for two socially harmonious animals (cm <sup>2</sup> )	Minimum floor area for three socially harmonious animals (cm <sup>2</sup> )	Minimum additional floor area per rabbit (cm <sup>2</sup> ) 4 to 6 rabbits	Minimum additional floor area per rabbit (cm <sup>2</sup> ) > 6 rabbits	Minimum cage height (cm)
<3.0	4655	5600	8600	3000	2500	45
3.0 to 3.5	4655	5600	8600	3000	2600	45
3.5 to 4.0	5586	6720	9720	3000	2600	45
4.0 to 5.0	5586	6720	9900	3300	3300	45
5.0 to 6.0	7128	8640	11640	3000	2500 or 3260 or 3300*	60
>6.0	7182	8640	12000	4000	4000	60

\*For the seventh rabbit 2500 cm<sup>2</sup>; for the eighth rabbit 3260 cm<sup>2</sup>; thereafter 3300 cm<sup>2</sup>.

## 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.<sup>25</sup> 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

<sup>25</sup> 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.<sup>26</sup>

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*.<sup>27</sup>

### 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.

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

<sup>27</sup> *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](http://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.<sup>28</sup>

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).

<sup>28</sup> 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.<sup>29</sup> 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.

<sup>29</sup> 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.<sup>30</sup> 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.<sup>31</sup>

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

<sup>30</sup> 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.

<sup>31</sup> 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”.<sup>32</sup> 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.

<sup>32</sup> 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.<sup>33</sup>

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.

<sup>33</sup> 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.<sup>34</sup> A diligent programme of maintenance and renewals is required.

Emergency provisions should be made in case pipes freeze or supplies otherwise fail.<sup>35</sup>

#### 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.

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

<sup>35</sup> 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 2: Mice, rats, gerbils, hamsters and guinea pigs

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

### 1 Advice applicable to all rodents

#### 1.1 Environmental conditions

##### 1.1.1 Ventilation

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

##### 1.1.2 Temperature

Rodent rooms should be maintained within a temperature range appropriate for the species and strain, usually 20°C to 24°C for mice, rats, gerbils and hamsters and 15-21°C for guinea pigs. Biocontainment systems, for example IVCs or isolators, should be set to ensure that the temperature that the animal experiences is appropriate, usually within these ranges.

Local temperatures among groups of rodents in solid-floored enclosures will often be higher than room temperatures. Even with adequate ventilation the enclosure temperatures may be up to 6°C above room temperature, and this may represent the preferred nesting temperature for the animals as indicated by good breeding performance and absence of indicators of poor welfare. Nesting material/ nest boxes give animals the opportunity to control their own microclimate.

Special attention should be paid to the temperatures provided for hairless animals.

##### 1.1.3 Humidity

It is advisable that the relative humidity in rodent facilities should be kept at 45 to 65%. Excepted from this principle are gerbils, where it is advisable that the relative humidity be maintained between 35 and 55% (see part 4 below for further information).

##### 1.1.4 Lighting

It is recommended that light levels within the enclosure are low. The light levels within cages are more important to the welfare of breeding rats, mice and hamsters than the light level in the room. All racks should ideally have shaded tops to reduce the risk of retinal degeneration. This is of particular importance for albino animals.

A period of red light at frequencies undetectable to the rodents can be useful during the dark period so that staff can monitor the rodents in their active phase. The importance of light to dark cycles in regulating circadian rhythms and stimulating and synchronising breeding cycles is well documented. A daily cycle of 12:12 is usual.

It is advisable that animals, especially when breeding, are given the opportunity to withdraw to shaded areas within the cage, for example by provision of adequate nesting materials.

##### 1.1.5 Noise

As rodents are very sensitive to ultrasound, and use it for communication, it is important that this extraneous noise is minimised. Ultrasonic noise (over 20 kHz) produced by many common laboratory fittings, including dripping taps, trolley wheels and computer monitors, can cause abnormal behaviour and breeding cycles. It is advisable to check the acoustic environment over a broad range of frequencies and over extended time periods. Sudden irregular noises create more disturbance in breeding rodents than continuous or predictable sounds. The rodent neonate uses ultrasound production to communicate distress – it is important that extraneous noise is minimised during late pregnancy and early lactation to reduce the risk of mismothering or cannibalism.



### 1.1.6 Alarm systems

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

## 1.2 Health

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

## 1.3 Housing, enrichment and care

### 1.3.1 Housing

Gregarious species should be group housed as long as the groups are stable and harmonious – social housing is vitally important to the welfare of social species and strains. When housing certain types of animals, for example males of some strains of mice and adult hamsters of some species, it can be difficult to achieve harmonious groups due to the risk of aggression, which can be severe. Expert advice should be sought as such groupings can be successful if done correctly. Animals may be housed individually if adverse effects or injury are likely to occur.<sup>36</sup> It is advisable to minimise disruption of established stable and harmonious groups, as this can be very stressful to the animals.

Incompatible species (for example, predator-prey species) may not be housed together.<sup>37</sup> Rats are opportunistic predators of mice. Evidence is equivocal as to whether housing mice and rats in open top cages in the same room is stressful to either/both species. On a precautionary basis, it is advisable to avoid such an arrangement in order to reduce the potential for scientific variability, and in the interests of minimising avoidable potential stressors. Should housing mice and rats in open top cages in the same room appear unavoidable, you should evaluate the likely impact on your proposed use of the mice and discuss this with your local Inspector. There is no evidence to suggest that housing mice and rats in IVCs in the same room is detrimental, provided they are kept in separate racks and the air flow into/out of the racks is set up appropriately.

### 1.3.2 Enrichment

The enclosures and their enrichment should allow the animals to reduce competitive situations adequately.<sup>38</sup> Bedding and nesting material and refuges are very important resources for rodents and should normally be provided. Cage enrichment and social interaction are considered to be of more value to the animal than simple floor space allocation. Large featureless cages can induce anxiety in rats.

Nesting materials should allow the rodents to manipulate the material and construct a nest. Nest boxes should normally be provided, especially if insufficient nesting material is provided for the animals to build a complete, covered nest.<sup>39</sup> Where sufficient nesting material is withheld there should be sound scientific justification. Bedding materials should ideally absorb urine and may be used by the rodents to lay down urine marks. Nesting material is important for rats, mice, hamsters and gerbils as it enables them to create appropriate microenvironments for resting and breeding. Nest boxes or other refuges are important for guinea pigs, hamsters, rats and many strains of mice, although they may increase aggression in some strains of group-housed male mice. Nest-box design is important to reduce aggression and the risk of injury, for example boxes with two entry/exit holes can help to diffuse antagonistic encounters because they cannot be blocked by a dominant animal. Wood sticks for chewing and gnawing may be considered for enrichment for all rodent species, provided the material chosen will not confound the science.<sup>40</sup>

Many rodent species attempt to divide up their own enclosures into areas for feeding, resting, urination and food storage. These divisions may be based on odour marks rather than physical division but partial barriers may be beneficial to allow the animals to initiate or avoid contact with other group members. To increase environmental complexity the addition of some form of enclosure enrichment is

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

37 In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 1.2.

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

39 In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.6.

40 See Section 3 Chapter 1 *Advice applicable to all animals*, paragraph 4.9.



strongly recommended. Tubes, boxes and climbing racks are examples of devices which have been used successfully for rodents, and these can have the added benefit of increasing utilisable floor area.

Consideration should be given to the use of translucent or tinted enclosures and inserts which permit good observation of the animals without disturbing them.

The same principles regarding quality and quantity of space, environmental enrichment and other considerations in this document should apply to containment systems such as Individually Ventilated Cages (IVCs), although the design of the system may mean that these may have to be approached differently.

### 1.3.3 Dimensions and flooring

Once young animals become active they require proportionally more space than adults. Animals' requirements to stretch to their full length should be taken into account when designing housing.

Solid floors with bedding or perforated floors are preferable to grid or wire mesh floors, and sound scientific justification is required to house rodents on grids or wire mesh. If grids or wire mesh are used, a solid or bedded area or, as an alternative in the case of guinea pigs, a slatted area, should be provided for the animals to rest on unless specific experimental conditions prevent this, and are authorised by the Project Licence.<sup>41</sup> Bedding may be withheld as part of time-mating practices.

As mesh floors can lead to serious injuries, if they must be used the floors should be closely inspected and maintained to ensure that there are no loose or sharp projections.

Rats, mice and hamsters are normally bred on solid floors, and require suitable bedding material (e.g. shredded paper or wood chippings) from which a nest can be constructed. This is important in thermoregulation of the microenvironment, and keeps the young together for efficient lactation.

### 1.3.4 Feeding

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

### 1.3.5 Watering

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

### 1.3.6 Substrate, litter, bedding and nesting material

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

### 1.3.7 Cleaning

Although high hygiene standards should be maintained, it may be advisable to maintain some odour cues left by animals. Too frequent changing of enclosures should be avoided, particularly where pregnant animals and females with litters are concerned, as such disturbances can result in mismothering or cannibalism. There is some evidence that transferring nesting material, but not soiled bedding, can be useful in order to maintain odour cues.

Decisions on frequency of cleaning should therefore be based on the type of enclosure, type of animal, stocking densities, and the ability of ventilation systems to maintain suitable air quality.

### 1.3.8 Handling

When handling, care needs to be taken to minimise disturbance of the animals or their enclosure environment. This is of particular importance with hamsters.

### 1.3.9 Humane killing

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

<sup>41</sup> Failure to provide such a resting area without authorisation is likely to breach the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.3.



### 1.3.10 Records

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

### 1.3.11 Identification

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

## 2 Additional advice applicable to mice

The mouse used for research purposes is a subspecies hybrid of a number of fancy breeds, and has developed into a range of well-defined inbred, outbred and genetically modified strains through intensive breeding over a period of more than 100 years.

### 2.1 Environmental conditions

#### 2.1.1 Ventilation

See Part 1: Advice applicable to all rodents.

#### 2.1.2 Temperature

See Part 1: Advice applicable to all rodents.

#### 2.1.3 Humidity

See Part 1: Advice applicable to all rodents.

#### 2.1.4 Lighting

See Part 1: Advice applicable to all rodents.

#### 2.1.5 Noise

Mice have very acute hearing and are sensitive to ultrasound.

#### 2.1.6 Alarm systems

See Part 1: Advice applicable to all rodents.

### 2.2 Health

See Part 1: Advice applicable to all rodents.

### 2.3 Housing, enrichment and care

#### 2.3.1 Housing

A wide range of social organisations have been observed depending on population density and intense territoriality may be seen in reproductively active males. Pregnant and lactating females may prove aggressive in nest defence. There are considerable differences in the expression and intensity of behaviour depending on the strain.

#### 2.3.2 Enrichment

See Part 1: Advice applicable to all rodents.

#### 2.3.3 Dimensions and flooring

See Part 1: Advice applicable to all rodents.



### 2.3.4 Feeding

See Part 1: Advice applicable to all rodents.

### 2.3.5 Watering

See Part 1: Advice applicable to all rodents.

### 2.3.6 Substrate, litter, bedding and nesting material

See Part 1: Advice applicable to all rodents.

### 2.3.7 Cleaning

As mice, particularly albino strains, have poor sight they rely heavily on their sense of smell and create patterns of urine markings in their environment.

### 2.3.8 Handling

See Part 1: Advice applicable to all rodents.

### 2.3.9 Humane killing

See Part 1: Advice applicable to all rodents.

### 2.3.10 Records

See Part 1: Advice applicable to all rodents.

### 2.3.11 Identification

See Part 1: Advice applicable to all rodents.

## 3 Additional advice applicable to rats

### 3.1 Environmental conditions

#### 3.1.1 Ventilation

See Part 1: Advice applicable to all rodents.

#### 3.1.2 Temperature

See Part 1: Advice applicable to all rodents.

#### 3.1.3 Humidity

See Part 1: Advice applicable to all rodents.

#### 3.1.4 Lighting

Daylight vision is poor, but dim-light vision is effective in some pigmented strains. Albino rats avoid areas with light levels over 25 lux.

#### 3.1.5 Noise

Rats are particularly sensitive to ultrasound.

#### 3.1.6 Alarm systems

See Part 1: Advice applicable to all rodents.





## 3.2 Health

See Part 1: Advice applicable to all rodents.

## 3.3 Housing, enrichment and care

### 3.3.1 Housing

See Part 1: Advice applicable to all rodents.

### 3.3.2 Enrichment

See Part 1: Advice applicable to all rodents.

### 3.3.3 Dimensions and flooring

For rat housing which includes a shelf area with 18 cm or more vertical space (clearance between the shelf and the floor and the shelf and roof), the shelf may count towards the total floor area.

### 3.3.4 Feeding

See Part 1: Advice applicable to all rodents.

### 3.3.5 Watering

See Part 1: Advice applicable to all rodents.

### 3.3.6 Substrate, litter, bedding and nesting material

See Part 1: Advice applicable to all rodents.

### 3.3.7 Cleaning

See Part 1: Advice applicable to all rodents.

### 3.3.8 Handling

See Part 1: Advice applicable to all rodents.

### 3.3.9 Humane killing

See Part 1: Advice applicable to all rodents.

### 3.3.10 Records

See Part 1: Advice applicable to all rodents.

### 3.3.11 Identification

See Part 1: Advice applicable to all rodents.

## 4 Additional advice applicable to gerbils

### 4.1 Environmental conditions

#### 4.1.1 Ventilation

See Part 1: Advice applicable to all rodents.

#### 4.1.2 Temperature

See Part 1: Advice applicable to all rodents.



### 4.1.3 Humidity

Gerbils are susceptible to high relative humidity, which can predispose them to skin conditions such as facial dermatitis and greasy coats. Humidity levels of below 50% should prevent these problems. In animal units in which humidity levels are maintained at 55 ±15%, lower humidity within the gerbil cages can be promoted by adequate provision of dry, absorbent bedding material.

### 4.1.4 Lighting

Light levels within cages are more important to the welfare of breeding gerbils than the light level in the room. There is evidence that gerbils exhibit a preference for partially darkened cages, and for this reason consideration should be given to providing shelter objects or suitable material from which a shelter/nest can be constructed. Light intensity should ideally be no greater than that which is required by husbandry practices or for safety reasons.

### 4.1.5 Noise

Sudden irregular noises create more disturbance in breeding gerbils than continuous or predictable sounds, and can induce epileptiform seizures in susceptible animals.

### 4.1.6 Alarm systems

See Part 1: Advice applicable to all rodents.

## 4.2 Health

See Part 1: Advice applicable to all rodents.

## 4.3 Housing, enrichment and care

### 4.3.1 Housing

The use of opaque breeding cages should be considered to reduce aggressive behaviour and prevent reduced breeding performance. As significant fighting and even deaths can occur during the establishment of breeding pairs, careful selection and monitoring is necessary, with consideration given to pairing in a “neutral” environment.

Nest-box configuration has been shown to be important in reducing stereotypical digging behaviour – it should ideally have a separation wall and a tunnel entrance including a bend/corner.

### 4.3.2 Enrichment

In the wild, gerbils build burrows with tunnel entrances as a protection against predators, and therefore in captivity often develop stereotypic digging behaviour unless provided with adequate facilities and enrichment.

Gerbils require a deep layer of litter for digging and nesting and a burrow substitute. A burrow substitute should ideally be at least 20cm long.

### 4.3.3 Dimensions and flooring

Gerbils need comparatively more space than other rodent species in order to allow them to build and/ or use burrows of sufficient size.

### 4.3.4 Feeding

See Part 1: Advice applicable to all rodents.

### 4.3.5 Watering

See Part 1: Advice applicable to all rodents.



### 4.3.6 Substrate, litter, bedding and nesting material

As not all litter is suitable for digging (e.g. sawdust-type litter), litter of a kind that is suitable for digging proper burrows should be provided wherever possible.

### 4.3.7 Cleaning

See Part 1: Advice applicable to all rodents.

### 4.3.8 Handling

Gerbils require confident, competent and careful handling, as this species has some unusual responses if mishandled. Poor handling may induce a “freeze” response, during which the animal becomes immobile, or may induce epileptiform convulsions. As epilepsy is a familial trait in gerbils, this factor should be considered during selection of replacement breeding stock. Lifting the animal by the tail should be avoided, as this may result in the separation of the skin of the distal tail, known commonly as degloving.

### 4.3.9 Humane killing

See Part 1: Advice applicable to all rodents.

### 4.3.10 Records

See Part 1: Advice applicable to all rodents.

### 4.3.11 Identification

See Part 1: Advice applicable to all rodents.

## 5 Additional advice applicable to hamsters

It is recognised that different species of hamster have different care and accommodation needs. Due consideration should be given to species-specific needs when defining or reviewing care and accommodation practices. The minimum cage sizes for hamsters specified in *Sections 1 and 2 Chapter 2 Mice, rats, gerbils, hamsters and guinea pigs* apply to all hamster species.

### 5.1 Environmental conditions

#### 5.1.1 Ventilation

See Part 1: Advice applicable to all rodents.

#### 5.1.2 Temperature

See Part 1: Advice applicable to all rodents.

#### 5.1.3 Humidity

See Part 1: Advice applicable to all rodents.

#### 5.1.4 Lighting

See Part 1: Advice applicable to all rodents.

#### 5.1.5 Noise

See Part 1: Advice applicable to all rodents.

#### 5.1.6 Alarm systems

See Part 1: Advice applicable to all rodents.



## 5.2 Health

See Part 1: Advice applicable to all rodents.

## 5.3 Housing, enrichment and care

### 5.3.1 Housing

Hamsters often make a latrine area within the enclosure, mark areas with secretions from a flank gland, and females frequently selectively reduce the size of their own litter by cannibalism.

### 5.3.2 Enrichment

See Part 1: Advice applicable to all rodents.

### 5.3.3 Dimensions and flooring

The climbing behaviour of hamsters should be taken into account when designing cages.

### 5.3.4 Feeding

Hamsters require food hoppers with wide slots as they have wide snouts.

### 5.3.5 Watering

See Part 1: Advice applicable to all rodents.

### 5.3.6 Substrate, litter, bedding and nesting material

See Part 1: Advice applicable to all rodents.

### 5.3.7 Cleaning

See Part 1: Advice applicable to all rodents.

### 5.3.8 Handling

See Part 1: Advice applicable to all rodents.

### 5.3.9 Humane killing

See Part 1: Advice applicable to all rodents.

### 5.3.10 Records

See Part 1: Advice applicable to all rodents.

### 5.3.11 Identification

See Part 1: Advice applicable to all rodents.

## 6 Additional advice applicable to guinea pigs

### 6.1 Environmental conditions

#### 6.1.1 Ventilation

See Part 1: Advice applicable to all rodents.

#### 6.1.2 Temperature

See Part 1: Advice applicable to all rodents.



### 6.1.3 Humidity

See Part 1: Advice applicable to all rodents.

### 6.1.4 Lighting

See Part 1: Advice applicable to all rodents.

### 6.1.5 Noise

Guinea pigs tend to freeze at unexpected sounds and may stampede, with a risk of injury, in response to sudden unexpected movements or noise. Care should be taken to minimise the generation of sudden extraneous audible and ultrasound noise in the vicinity of the animals.

### 6.1.6 Alarm systems

See Part 1: Advice applicable to all rodents.

## 6.2 Health

See Part 1: Advice applicable to all rodents.

## 6.3 Housing, enrichment and care

### 6.3.1 Housing

Adult male guinea pigs may be aggressive to each other, but generally aggression is rare. Guinea pigs do well in floor pens provided care is taken to avoid draughts and plenty of bedding material is supplied.

### 6.3.2 Enrichment

See Part 1: Advice applicable to all rodents.

### 6.3.3 Dimensions and flooring

See Part 1: Advice applicable to all rodents.

### 6.3.4 Feeding

Guinea pigs are unable to synthesise vitamin C (ascorbic acid) in sufficient quantity to meet their daily requirements. It is therefore essential that their diet is of suitable composition to meet this requirement.

### 6.3.5 Watering

See Part 1: Advice applicable to all rodents.

### 6.3.6 Substrate, litter, bedding and nesting material

It is strongly recommended that guinea pigs are always provided with materials they can manipulate, such as hay for chewing and concealment.

### 6.3.7 Cleaning

See Part 1: Advice applicable to all rodents.

### 6.3.8 Handling

Guinea pigs are extremely sensitive to being moved and may freeze as a result for 30 minutes or more.

### 6.3.9 Humane killing

See Part 1: Advice applicable to all rodents.



### 6.3.10 *Records*

See Part 1: Advice applicable to all rodents.

### 6.3.11 *Identification*

See Part 1: Advice applicable to all rodents.



## Section 3, Chapter 3: Rabbits

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

To maintain suitable air quality, air flow rates required may differ depending on the type of accommodation, with tiered racks of cages likely to require higher rates than single-tiered open mesh cages and floor pens. As rabbits shed considerable amounts of hair, consideration should be given to cleaning the extract ducts regularly to ensure continued efficiency of ventilation.

## 1.2 Temperature

It is recommended that rabbit rooms are maintained in a temperature range of 15°C to 21°C. It is recommended that temperature regulation ensures that there are no undue fluctuations which could cause unnecessary stress and clinical welfare problems. Local temperatures among groups of rabbits in solid-floored enclosures will often be higher than room temperatures. Even with adequate ventilation the enclosure temperatures may be up to 6°C above room temperature and careful observation will be required to ascertain whether this represents the rabbits' preferred temperature or whether there is any evidence of a negative welfare impact. Nesting material/nest boxes give animals the opportunity to control their own microclimate.

## 1.3 Humidity

It is recommended that the relative humidity in rabbit facilities is not less than 45%. It is recommended that fluctuations in humidity are avoided as these can precipitate respiratory disease.

## 1.4 Lighting

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

## 1.5 Noise

Rabbits are easily frightened by sudden unexpected loud noise and may injure themselves in panic. Some forms of low-level background noise in the animal room may be beneficial in reducing the impact of sudden loud noises. As rabbits are sensitive to ultrasound, care should be taken to minimise the generation of extraneous audible and ultrasound noise in the vicinity of the animals.

## 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

Rabbits should be allowed adequate space and an enriched environment – the denial of which can result in loss of normal locomotor activity and in skeletal abnormalities.<sup>42</sup>

The rabbit is a naturally gregarious species and attention should be paid to their social well-being. Young and female rabbits should normally be housed in harmonious social groups. Single housing

<sup>42</sup> In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.3.2.



should only occur on animal health or welfare grounds, unless it is permitted by Project Licence authority.<sup>43</sup> Adult entire males may perform territorial behaviour and are not normally housed with other entire males. Pregnant females may require temporary single housing in order to avoid aggression and safeguard their welfare. Enriched floor pens have been used with success to house young rabbits and adult female rabbits although groups may need to be carefully managed to avoid aggression. Ideally rabbits for group housing should be littermates that have been kept together since weaning. Where individuals cannot be group housed, consideration should be given to housing them in close visual contact.

### 3.2 Enrichment

Suitable enrichment for rabbits includes roughage, hay blocks or chew sticks as well as an area for withdrawal. In floor pens for group housing, visual barriers and structures to provide refuges and lookout behaviour should normally be provided. For breeding does nesting material and a nest box are appropriate provisions.

### 3.3 Dimensions and flooring

Sections 1 and 2 of this CoP require that a raised area is provided within the enclosure. This is to encourage normal locomotor activity and can also be used as a lookout point.

Wherever it is possible, rabbits should be kept in floor pens. Where rabbits are to be held in floor pens, attention should be given to the avoidance of draughts. Floor pens should be constructed with consideration of minimising damage to feet and hocks. It is recommended that pens contain structures that subdivide the space to allow animals to initiate or avoid social contact.

Wire floors should not be used without the provision of a resting area large enough to hold all the rabbits at any one time, as this may cause injury to the animals. Solid floors with bedding or perforated floors are preferable to grid or wire mesh floors.

### 3.4 Feeding

Feeding rabbits in the afternoon corresponds better with their natural foraging period, and has been shown to reduce abnormal activity such as bar biting during the dark (active) phase. There is a need for a high level of dietary roughage (e.g. hay), to maintain gastrointestinal health, but also to help prevent boredom.

### 3.5 Watering

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

### 3.6 Substrate, litter, bedding and nesting material

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

### 3.7 Cleaning

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

### 3.8 Handling

Domestic rabbits were not selected to be tractable towards humans and so they retain a behavioural repertoire that is similar to their wild type ancestors. They are largely nocturnal, have a wide field of vision and are easily frightened. It is therefore important to minimise stress. Regular handling from an early age can help with this, for example from ten days of age.

### 3.9 Humane killing

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

<sup>43</sup> See Introduction paragraph 8.4: Specifying deviations from CoP Section 1 or 2 standards.





### 3.10 Records

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

### 3.11 Identification

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

### 3.12 Considerations for breeding rabbits

A minimum of three to four days before giving birth, it is recommended that does are provided with an extra compartment or a nest box in which they can build a nest. The nest box should preferably be outside the enclosure. Hay, straw or other nesting material should be provided.<sup>44</sup> It is recommended that the enclosure is designed so that the doe can move to another compartment or raised area away from her kits after they have left the nest. The young rabbits emerge from the nest box at two to three weeks of age and are generally weaned at four to six weeks. After weaning, the littermates should ideally stay together in their breeding enclosure as long as possible.

---

<sup>44</sup> In order to meet the requirements of Sections 1 and 2 Chapter 1 *Standards applicable to all animals*, paragraph 3.6.