C. Species-specific provisions for cats

1. Introduction

The domestic cat is derived from the solitary African wild cat (*Felis silvestris libyca*), but has a strong tendency to learn social behaviour. With appropriate socialisation provided at an early age, such behaviour can be expressed both to conspecifics and man.

Good social interaction with humans encourage suitable temperament for subsequent studies. However, as cats lack dominance hierarchies and appear to lack mechanisms for reconciliation post-conflict, forming social relationships may be stressful. Visible signs that cats are stressed are not as straightforward to interpret as are those in dogs.

Staff levels must be adequate for the size of breeding colony and husbandry practices followed. In setting staff levels it is most important to take into account time for the important human social interactions required, especially of the kittens and single housed animals. This must include regular animal handling.

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

2. The environment and its control

2.1. Ventilation

(See paragraph 2.1. of the General section)

2.2. Temperature

Cats may be maintained within a wide temperature range provided that their welfare is not compromised. A room temperature range of 15°C to 21°C
should be maintained when precise control is required for cats under
procedure (see paragraph 2.2.3 of the General Section).

As kittens have limited thermoregulatory control for around the first ten days of
life, additional local heating should be provided during this period.

2.3. Humidity
It is considered unnecessary to control relative humidity, as cats can be
exposed to wide fluctuations of ambient relative humidity without adverse
effects. However, recording humidity on a regular basis can be help to identify
any potential problems at an early stage.

2.4. Lighting
Holding of cats under the natural twenty-four-hour light-dark cycle is
acceptable. Where the light part of the photoperiod is provided by artificial
lighting, this should be within a range of ten to twelve hours daily.

If natural light is totally excluded, low level night lighting (5 to 10 lux) should be
provided to allow cats to retain some vision and to take account of their startle
reflex. Some light systems have been shown to be aversive to some animals,
possibly because the cat’s Critical Fusion Frequency is higher than that of
humans so they may perceive light sources as flickering whereas humans do
not (Berkley 1976).

The photoperiod may be varied in cat colonies as a method of controlling the
reproductive cycle. Normal photoperiod allows 14 hours of light, but this may
be reduced to a minimum of 8 hours where control of the reproductive cycle is
being undertaken.

2.5. Noise
(See paragraph 2.5. of the General section)
The hearing range of cats is 0.07 – 91kHz, with a peak sensitivity 1-40kHz.
Unpredictable noises cause stress. Sound absorbing materials or the use of
background sound (such as radio music when played quietly) will help reduce
the disturbance caused by husbandry-generated noise or other sudden, unexpected noises.

2.6. Alarm systems
(See paragraph 2.6. of the General section)

3. Health
(See paragraphs 4.1. and 4.4. of the General section)
A minimum quarantine period of 2 weeks is recommended because the incubation period of most diseases is less than 2 weeks and this duration also allows for additional sampling and analysis if required.

4. Housing, enrichment and care

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

Where cats are normally group-housed, single-housing may be a significant stress factor. Therefore, cats should not be single-housed for more than twenty-four hours without justification on veterinary or welfare grounds. For single housing for more than twenty-four hours on experimental grounds, see paragraph 4.5.2 of the General section.

Cats which are repeatedly aggressive towards other cats should be housed singly only if a compatible companion cannot be found. Social stress in all pair-or group-housed individuals should be monitored at least weekly using an established behavioural and/or physiological stress scoring system.
(Reference to be provided). This is especially important for un-neutered males.

Females with kittens under four weeks of age or in the last two weeks of pregnancy may be housed singly. During this time, consideration should also be given to allowing females which are normally group-housed to have access to their group e.g. by connecting kittening enclosures to the group housing animal enclosures. Where females with kittens are confined within a cage environment, additional exercise must be provided for the queen on a daily basis with access to human social contact and ancillary play equipment. A usable shelf or solid nest box lid should be supplied to permit the queen some personal space distant from the litter.

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

All cats should have a period of play and general social interactions with humans on a daily basis, plus additional time for regular grooming. Particular attention should be paid to social enrichment for single-housed cats by providing additional human contact and wherever practicable, cats should be housed in social groups. Where they must be housed singly, they should be let out for exercise at least once a day where this does not interfere with procedures.
4.2. Enrichment

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

There should also be provision for the cats to seek refuge and privacy within their own enclosure and, in particular, away from the sight of cats in other enclosures. Vertical wooden surfaces should be provided to allow claw-sharpening and scent-marking.

Pseudo-predatory and play behaviour should be encouraged. A selection of toys should be available and these should be changed on a regular basis in order to ensure ongoing stimulation and avoid familiarity, which decreases the motivation to play.

4.3. Enclosures – dimensions and flooring

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

4.3.1. Dimensions

<table>
<thead>
<tr>
<th>Table C.1. Cats: Minimum enclosure dimensions and space allowances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum for one adult animal</td>
</tr>
<tr>
<td>For each additional animal add</td>
</tr>
<tr>
<td>Note: * Floor area excluding shelves.</td>
</tr>
</tbody>
</table>
The minimum space in which a queen and litter may be held is the space for a single cat, which should be gradually increased so that by four months of age litters have been re-housed to conform to the above space requirements for adults. The normal age for weaning is seven to nine weeks.

Cats should never be forced to spend their entire lives outside and should always have access to an internal enclosure that meets all standards, including the minimum dimensions, detailed in these guidelines. Outside runs however provide an environmental enrichment opportunity for cats in both breeding and user establishments and should be provided where possible.

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

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

4.3.2. Flooring
The preferred flooring for cat enclosures is a solid continuous floor with a smooth non-slip finish. Additional enclosure furniture should provide all cats with a comfortable resting place.

Open flooring systems such as grids or mesh should not be used for cats. Where there is a justification for open flooring, great care should be taken in their design and construction in order to avoid pain, injury or disease and to allow the animals to manifest normal behaviours. Practical experience shows that metabolism cages are not always necessary as urine and faeces can be collected directly from litter trays.
The quality and finish of the floor of an outside run need not be to the standard of the inside enclosure, providing it is easy to clean and not physically injurious to the cats.

4.4. Feeding

(See paragraph 4.6. of the General section)

4.5. Watering

(See paragraph 4.7. of the General section)

4.6. Substrate, litter, bedding and nesting material

At least one litter tray of minimum dimension 300 x 400 mm should be provided for every two cats and should contain a suitable absorbent and non-toxic litter or substrate material that is acceptable to and used by the cats. If urine and faeces are regularly deposited outside the trays, additional trays containing alternative substrates should be provided. If this is ineffective in pair-or group-housed cats, social incompatibility is indicated and cats should be removed from the group one at a time until the problem is resolved.

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

4.7. Cleaning

Each occupied enclosure should be cleaned at least daily. Litter trays should be emptied daily and litter material replaced.
Cleaning of enclosures should not result in cats becoming wet. When enclosures are hosed down, the cats should be removed from the enclosure to a dry place and returned only when the enclosure is reasonably dry.

4.8. Handling
For cats, close contact with the persons caring for them is crucial, especially for single-housed cats.

4.9. Humane killing
(See paragraph 4.11. of the General section)

4.10. Records
(See paragraph 4.12. of the General section)

4.11. Identification
(See paragraph 4.13. of the General section)