Feline housing considerations in a shelter/rescue, veterinary hospital or boarding facility

In any multi-cat housing arrangement, purposefully designed housing that provides for each cat's individual physical and mental state of well being is equally as important as proper vaccination and sanitation practices are in ensuring good health for all.

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Importance of shelter cat housing

The type of housing encountered in a shelter, veterinary clinic or boarding facility is arguably the single most important factor in determining the quality of a cat’s experience in that environment. Housing impacts the cat 24 hours a day and affects everything from stress level and disease risk to food intake and sleep quality. Good quality housing must meet several criteria:

- Protect cats from disease exposure
- Permit provision of clean water and food without contamination from litter or excrement
- Facilitate monitoring of health, behavior and overall well-being
- Permit efficient and low-stress daily care
- Provide physical comfort (e.g. variety of surfaces, thermal control, visual choices)
- Provide good air quality
- Provide cats with the opportunity to express normal behavior, such as hiding, perching, walking, jumping,
In a shelter environment, housing must also facilitate the main functions of the shelter, which often includes reclaim, rescue, return to field or adoption of cats. Therefore, housing must not only protect cats from disease exposure and stress, it must simultaneously present cats for viewing to be recognized and reclaimed by owners or selected for adoption. Sometimes this leads to apparently conflicting goals: housing that is welcoming to adopters and volunteers may not facilitate easy disinfection or may subject cats to relatively high stress levels. However, if cats get sick or unduly stressed they may be less likely to be adopted. Ultimately, a balance must be struck that meets the needs of cats, staff and adopters.

**Re-evaluating the basics: what do cats need?**

For decades, feline housing has been produced with little regard to even the most basic needs of cats. Intake housing, where cats spend the crucial first days in shelter care, most often consists of a single-compartment cage, approximately 24” wide by 28” deep by 24” high. With a food and water dish and litter pan placed in the cage, there is no room for an adult cat even to lay down with its body fully extended, let alone walk a few steps, stretch, or express virtually any other normal feline behavior (Figures 1A and B).

Provision of a hiding place, a crucial tool to relieve stress in cats, results in an even more cramped environment. Contamination of food and water by adjacent litter and feces is common. These cages are difficult to clean on a daily basis without direct handling of cats, which in turn results in stress and extensive opportunities for fomite transmission. Housing in this type of cage has even been linked to increased risk of euthanasia and decreased likelihood of adoption when compared to more enriched housing[1].
Figures 1A: The litter box has been overturned, leaving the top of the hiding box the only place to retreat from the mess. Figure 1B: With litter and food in place the floor area is insufficient to allow virtually any normal behavior or posture other than the cramped position this cat has assumed.

Group housing has been utilized to address some of the deficiencies associated with traditional single cat housing. It is easier to provide cats behavioral choices, such as jumping, running, and hiding in a group housed setting. Caretakers can enter group rooms to tidy up, feed and care for the cats with minimal disruption and without having to directly handle cats, and adopters can interact with the cats in a more home-like environment.

However, group housing has significant downsides. Disease control within the group is not possible, making this an appropriate choice only for adult cats (> 5 months of age) known to be in good health and protected by vaccination. Even so, transmission of sub-clinical infections can be a problem. Additionally, monitoring of individual health or behavior is challenging and some problems can go undetected until serious health and welfare issues have developed.

Perhaps most importantly, group housing can create intense, unrelieved stress for some cats\textsuperscript{2}, increasing their risk for disease, reducing their chance of adoption, and making their daily life miserable. Because cats must use space rather than physical barriers to prevent conflict in group rooms, more rather than fewer square feet per cat are required in group compared to single housing to prevent unacceptable stress levels\textsuperscript{3, 4}.
For cats that have not been previously socialized to other cats, group housing is likely to be a constant stressor, and addition of non-cat-social cats to a group can elevate the stress levels of the resident cats as well [5]. The transient nature of most shelter environments exacerbates the problems with group housing: we routinely counsel clients to give newly adopted and resident cats plenty of time for a gradual introduction, yet in shelter group housing several cats a day may be abruptly removed and added, leading to constant social stress and readjustment.

Addition of new cats to a group has been shown to be a powerful activator of feline herpesvirus, leading to reactivation of this infection even in cats negative after two steroid treatments[6].

Elements of single cat housing

In light of the significant inadequacies of much existing cat housing in the United States, it is helpful to take a step back and look at what cats really need, rather than what we have been accustomed to providing. Adequately sized, enriched single cat housing is generally the method of choice for housing newly admitted cats, and is the best method to house any cat not previously socialized to other cats throughout the shelter stay (cage housing for up to two weeks stay and individual room housing for longer shelter stays).

Single cat housing should have the following characteristics (although the word “cage” is used, these characteristics could be provided in a large condo, walk in kennel type housing unit or individual room):

Adequate floor space and height

- One study found that cats were less stressed when given 11 square feet of floor space compared with cats given only 7.5 square feet[3]
- In order to allow cats to assume most normal postures, one compartment needs to have at least 28” by 30” of clear floor space (e.g. excluding space occupied by bed, food and water dishes, litter boxes)
- In order to accommodate a carrier or hiding box, this generally means a width of ~ 3 feet for a main compartment
• The height should be high enough to allow the cat to stand on its hind legs & fully extend its front legs without touching the roof of the enclosure, at least 28” with a shelf or other elevated perching space[7]

**Hiding box/carrier**

• All cats should be provided with appropriate places for concealment which comfortably allow them to avoid visual contact with people or other animals [8]. These can be arranged such that staff can look in on an angle for identification and monitoring of cats.
• Cages should be of sufficient size to accommodate a carrier which can be used to move the cat safely throughout the facility (and can double as the hiding space within the cage). A carrier ideally moves with the cat throughout its shelter stay, from transport to intake, through stray holding and surgery, to move the cat through the building and provide a secure hiding place in socialization areas, to and from foster care, etc.
• If an airline type carrier or cardboard “Hide Perch and Go” type box is used, this can even go home with the cat to ease the transition to its new environment.
• **Note: Small cages do not accommodate physical hiding structures within the cage and take up too much of the cage floor space. In the interim of providing better housing for cats – external hiding structures can be used- such as curtains or a draped towel partially covering the cage door can effectively provide cats with a place for retreat. See how to make your own cage covers on our Curtailments information sheet.**
• Another good option for small cages is an elevated bed – this gives cats some choice and when a towel is draped over the bed, a hiding area is created. See how to make elevated beds on our information sheet Building an elevated bed for use in shelter cat housing.

**Double-compartment**

• For shelter cats housed in cages – double compartment housing provides cats with an opportunity for health and well being. In addition to allowing for easy daily cleaning and care without disruption, double compartment cages allow for distinct separation of elimination areas from
feeding and resting areas and promote friendlier behavior that may increase likelihood of adoption [9]

- Litter should be kept in a separate compartment from the main food and resting area. The litter compartment may be smaller than the main living compartment but should be at least 15” wide to accommodate a litter box and allow easy access for cleaning.
- The most flexible use double compartment cage housing has been 30”- 36” wide by 28” deep by 28-30” high single units joined by a pass through or portal up and down and side to side to another cage of the same size.

Litter box of sufficient size and depth, located to accommodate normal posturing.

- Litter compartments, if used, must permit normal posturing and must accommodate a litter box at least 3” deep, 12” wide by 15” long (ideally 1.5 times the length of the cat - provide larger boxes to large cats and those who tend to poop over the side)
- Insure that there are not obstructions to normal posturing at least 18” above the litter box - i.e. shelves, beds, etc.

Minimal noise

- There should be no visual or auditory exposure to dogs, which is a significant stressor to shelter cats [10]
- Be aware of other contributors to noise in the environment. Stainless steel cages are a common culprit and cleaning time can be quite noisy, with the type of sporadic clanging that is disruptive to feline relaxation. Choose cages with non-metal latches or at least with latches that do not rely on weight to close (these tend to be noisiest).
- Sound absorbing material (auto sound deadening material cut into 3” x 6” patches) can be used on the walls, ceiling and floors on the outsides of older cages to dampen the noise of metal cages.

Prevention of visual stressors, provision of visual stimulation

- Dogs and enforced visual contact with other cats can be a stressor
- Cats should not be housed in such a way that they are
unable to avoid direct visual contact with others

- However, cats in normal environments do choose to spend a significant amount of time in visual contact with other cats (nearly 50% in one study\cite{11}) or looking out windows; cat cages should not face a blank wall
- If cage banks face each other, part of the cage should be covered so that cats can choose their level of visual contact.

**Hard and soft surfaces**

- Cats prefer soft sleeping surfaces over harder surfaces such as metal\cite{12}, \cite{13}
- Firm, cool surfaces benefit cats’ ability to thermoregulate; the entire cage should not be taken up with soft bedding

**Adequate ventilation**

- Cat housing areas should be adequately ventilated with fresh air at 10-12 air exchanges per hour\cite{14}
- Although airborne disease transmission is low risk for individually housed cats\cite{15}, good air quality is important for cat well-being.
- Larger cages with open bar cage fronts and preferably openings in the rear wall of the cage allow room air to move through the housing unit
- As cages become more enclosed room air does not easily move into the cage and a mechanical system is needed to provide adequate ventilation within each housing unit.
- Air quality in fully enclosed cage housing can be difficult to assess and monitor and can be problematic with mechanical failures.

**Enrichment within the cage and opportunity for out-of-cage time**

- Provide cats with a variety of toys and a scratching post or pad
- Once screened for health, provide individually housed cats with an opportunity for out of cage time unless cage size is sufficiently large to permit running, jumping, predatory-play behavior, lap-sitting and other normal cat behaviors. This can be accomplished in a separate, easily cleaned room or large pen placed off to the side or in the center of a room.
• Do not allow cats to run loose in a room during cleaning as a method of enrichment, as litter, hair and debris tends to accumulate on the floor in front of cages (especially during cleaning) and may transmit infection.

• Because not all kittens < 5 months of age can be reliably protected by vaccination, the ideal is for these youngsters to move rapidly through the shelter into homes, alleviating the need for out of cage time. If kittens spend time out of the cage in a common play area, make sure it is made of smooth, sealed material and disinfected with a parvocidal (e.g. Accel, Trifectant) disinfectant between each use.

• For healthy adult cats, the play area may be disinfected once daily and as needed.

Outdoor space if possible

• Cats benefit from the choice of exposure to sunlight and fresh air.

• Single or stacked pens connecting to the outdoors facilitate ventilation and can be a cost effective means of substantially improving air quality.

• In temperate weather litter pans can be kept in the outdoor half of the run, creating a more pleasant environment for cats and visitors.

• Outdoor areas should be connected via a flap to an indoor compartment.

Opportunity for adoption

• Give potential adopters the opportunity to make physical contact with adoptable cats, e.g. housing that allows interaction and petting through cage bars or openings in the housing unit, an interactive toy, or the opportunity to physically enter a large kennel or individual room.

• Many adopters report that physical contact is an important factor in adoption-decision making (“the cat chose me”). Avoid housing that completely cuts off contact between cats and people. The risk of infectious disease transmission amongst healthy adoptable cats by visitors is likely minimal compared to the benefit of improving the chances and speed of adoption. Provide hand sanitizers and hand washing stations and avoid housing sick cats in the same area as healthy, adoptable cats.

• A recent study found that adopters spent more time viewing cats with toys in their cage, cats at eye level, and
those that were active, and that active cats were more likely to adopted[16]. Take these factors into account when considering cat adoption housing.

- Avoid housing cats along the floor or out of reach way up high, and provide spacious cages with plenty of toys and options for activity.
- If cats must be housed in less visible locations, take extra measures to promote them and rotate them to more prominent locations as space becomes available.
- Provide a variety of housing in the adoption area: individual cages for cats and kittens that will move quickly through the adoption process; individual rooms for cats that may need more time for adoption but do not acclimate to group housing; and small group rooms sized for 2-4 cats for a more spacious adoption housing environment that adopters can enter.
- *Note: group housing rooms can be larger and provide more space than the minimum of 18 ft²/cat but small group numbers 2-4 are ideal (see group housing below).*

**Cost effective solutions for individual cat housing**

Although converting single cages to double compartment housing or replacing cat housing represents initial investment, over time this will be more than repaid in decreased cost of illness and efficiency of care. Housing has been specifically linked to increased risk of upper respiratory infection (URI) and euthanasia in cats [1]. Each case of URI can cost an estimated $200-$400 (including daily cost of boarding and care). When a cat is euthanized rather than adopted, not only is a life lost, but also the opportunity to recover adoption and service fees is missed, resulting in increased overall cost to the shelter. Double compartment or walk-in housing will also result in daily time savings through greater ease of cleaning. Providing quality housing makes financial as well as ethical sense.

In case of severe financial constraints, gradual changes can be made, with a priority on intake housing and housing for kittens (as these populations are most vulnerable to infection). Lower cost materials may also be considered. While stainless steel is often considered the material of choice for its durability and ease of disinfection, it is also cold, reflective, noisy and has historically been available in a limited standard size range. For more information, see our information sheets on Pre-Fabricated
Portals and PVC Portals.

Figure 2A: A pre-fabricated shower stall has been outfitted with shelves to provide additional functional space. Figure 2B: Two stainless steel cages have been joined via a portal to provide space for cats to express normal behaviors and walk about within the housing unit as well as provide functional separation of food/water from litter.

Elements of group housing

Group housing can provide a more varied environment for cats and has the obvious benefit for cat-social cats of providing the opportunity to interact with other cats. As noted above, more rather than less space is required per cat, so group housing should not be viewed as a cost effective means of stuffing more cats into the same amount of space.

Quality group housing should have the same characteristics as enriched single housing, with these additional considerations:
At least 18 square feet of floor space per cat and the opportunity to maintain a distance of 1-3 meters distance between themselves and other cats [3, 4, 11]

- This does not include perches or walkways, but in temperate climates can include outdoor areas provided cats have 24 hour access to these

**Group size of 2-4 cats**

- Addition of new cats to a group results in more frequent aggression and can even cause sufficient stress to activate feline herpesviral infection [6]
- In order to prevent frequent regrouping and to allow periodic complete emptying and disinfection of group rooms, more small rooms are greatly preferable to a few larger group rooms
- Dog runs can be nicely converted to serve as small “group rooms” for this purpose
- At maximum house no more than 8-10 cats per adequately sized group room

**Ample hiding and resting areas**

- There should be at least as many hiding areas and elevated resting surfaces (at least 12” wide) for the number of cats plus one.

**Ample litter and feeding stations**

- While it may not be practical or desirable to provide each cat with a litter box, even in small rooms housing only 2-4 cats there should be at least 2 non-adjacent litter boxes and feeding/watering stations to prevent guarding by any one cat
- As the cat numbers increase the number of feeding stations and litter boxes will also need to increase
- Daily monitoring is required, especially at feeding time, to ensure each cat has access to food and water

**Enrichment materials such as scratching posts, perches and furniture that can be readily**
disinfected or discarded from time to time

Double doors if possible

- This is especially important in larger group rooms to prevent feline escape when human visitors come in and out
- At minimum, group room doors should not open directly to the outdoors

Daily monitoring and removal of cats showing signs of social stress, including frequent hiding, sitting with back turned to the group, decreased motor activity or inappropriate elimination[9]

- Guarding of resources also indicates stress for the cat in question as well as fellow residents of group housing, and cats observed guarding food, litter, doorways or resting spots should also be removed
- Individual housing is the ideal option for any cat showing signs of stress in a group room, rather than repeatedly trying to house them with different, more compatible groups as the process of trying to find a compatible group is likely to afford numerous opportunities for stress and disease transmission.

Conclusion

For much too long, cat housing has been little more than an afterthought. These active, curious, intelligent creatures have been confined in environments that in another context would be clearly unacceptable. By paying attention to this important aspect of care for confined felines, an initial investment can have long term rewards in reduced staff costs, reduced disease, increased adoptions, and most importantly, greater comfort and well being for every minute a cat is in our care.

References

2. Ottway, D.S. and D.M. Hawkins, Cat housing in rescue shelters: a welfare comparison between communal and


