Design of Animal Housing

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The way you house animals speaks to the priorities of your organization, whether you work in a shelter or a veterinary hospital. In shelters, well-designed animal housing is perhaps the most important physical tool for getting animals out the doors and into loving homes. In hospitals, good housing helps patients recover faster and makes pet parents more comfortable and trusting of the care their pet is receiving.

**Creating a Better Environment for Animals**

Environment significantly affects the behavior and stress level of both animals and humans. Imagining how you would feel if you were put into a noisy, uncomfortable, crowded space, might start to give you a clearer impression of what dogs and cats feel like when they are taken from their homes and put into runs and cages. They do not know that your intentions are good or that the situation is temporary.

In today’s progressive animal care facilities, the design of animal enclosures is changing from an engineering approach to a performance approach. Design goals have shifted from housing animals with the least amount of effort, to creating facilities that consider the behavioral, biological, psychological, and social health of the animals.

**Spatial Requirements (Dogs)**

If you were to look at dog housing standards across the globe, you would become confused, as there does not seem to be consensus on the proper size of enclosures for housing dogs. This appears to be the result of three factors:

* The size of the dog. For example, a small companion dog may be more comfortable in a cage off the floor than in a large run.
* The length of stay. Dogs staying for longer periods of times in facilities need more space than dogs staying for shorter periods of time.
* The behavior and personal experiences of the dog. When working on the ASPCA facility in New York City, we learned that most of their dogs came from situations of confinement. These dogs did not generally feel comfortable in large spaces.

Given the confusion in size of housing, we think it is more important to focus on the characteristics of the housing.

Sized for Normal Behavior:A dog should be housed in such a way that allows for normal posture, turning around without touching the walls, and expressing common behaviors. If you follow this guideline, most dogs need runs that are at minimum four feet wide, and even wider for very large dogs.

Shape: The shape of traditional runs contributes to discomfort. In the typical long, narrow run, dogs can’t move and circle in the same way they would in a free environment. When individually housed, this is not a significant concern, but when another dog or a staff member is in the run, some dogs will feel trapped and display abnormal levels of aggression. You see the same dynamic at play when dogs pass each other in narrow hallways. A wider enclosure works better than a narrow one.

# Choice for Resting and Elimination: If given the choice, dogs will choose to eliminate away from where they eat most of the time.1 Therefore, in shelters, dogs should be provided with double-compartment housing. Double-compartment housing is not generally used in veterinary settings due to shorter length of stay.

# Enrichments: The housing should be sized to provide reasonable enrichments such as room for beds, food, and water, and ways to get away from the drain or any wet conditions on the floor.

# Spatial Requirements (Cats)

# The ASV Guidelines are clear that sheltered cats should be provided with 11 square feet of floor space in individual housing and 18 square feet of space in group housing. Cats in individual housing should be housed in cages that are at least 30-inches tall to allow for normal postures.

# Eleven square feet always equates in a shelter environment to double-compartment housing as it is difficult to find a manufactured cage in the recommended five-foot minimum length. As we have worked with these guidelines in many case studies, we have developed a preference for two equal size compartments (for example, two thirty-inch compartments) rather than a small and large compartment. In the latter case, the small compartment is usually the litter compartment, and fearful cats will seek the more enclosed space and end up resting in their litter.

# If given the opportunity, shelter cats benefit form even larger compartments during low seasons. Caging can be portalized top to bottom as well as side-to-side to provide for better environments for cats during certain times of year.

# Given what we know about the sheltered cat and the relationship between the size of the space and physical health and wellbeing, we should also upsize the ridiculously tiny cages found in many older veterinary hospitals. We advise veterinarians to provide a variety of housing sizes for cats. For cats that need movement restriction (such as after surgery), small cages may be preferred. But for healthy cats, wider caging of 36-inch minimum will allow for hiding boxes or towels and freedom of movement.

# Cats that are housed overnight, such as in boarding facilities, should be housed as if they were sheltered cats.

**Familiar Environments**

Animals are stressed by being exposed to unfamiliar environments. Therefore, the environment within a holding enclosure should be as familiar and comfortable as possible.

* Avoid crowding of too many animals in one room.
* Separate animals by species.
* Provide natural light.
* Provide pleasant views, such as to outside spaces.
* Provide raised resting areas.
* Reduce odor and provide good air quality. If possible, provide the animals with access to fresh outside air.

**Noise Control**

One of the major questions to be answered in the design of any dog housing area is how to reduce noise from barking dogs. The conventional focus has been on absorbing reverberant sound, and secondarily on keeping the noise from being broadcast throughout the rest of the facility. While the traditional sound control techniques still need to be employed, it is most important to prevent the factors that cause dogs to bark.

Some of the causes to be considered are people and animals passing enclosures, the social facilitation that spreads barking, excitement, and feeding and walking times.

Reduce overstimulation by housing a smaller number of dogs in each room, avoiding long straight corridors (the gauntlet of dogs), providing partial visual blocks for highly reactive dogs, and providing the dogs with some choice over their environment.

Do not forget that dog noise affects cats. Cats should be housed in areas that are physically separate from dog areas and away from other loud areas of the hospital. Even caging design is an important consideration. Stainless-steel caging may be the most cleanable, but it has the disadvantage of being loud.

**Social Interactions for Sheltered Dogs**

Safety and disease control are critical for the animals in your care. However, social isolation is stressful, especially for dogs because they are social by nature. Most dog housing is designed to minimize labor cost by eliminating as much animal handling as possible. Therefore, most staff time is spent cleaning up messes, with little time spent socializing with and exercising the dogs. It is better for both people and animals alike if the dogs are taken out on a regular schedule. This allows the dogs to interact with staff and volunteers. Many shelters are also now incorporating play groups for dogs, especially large, active dogs.

**Social Interactions for Sheltered Cats**

While not all cats are social, many cats do well in group housing in shelters. Visitors typically love group housing because they can go in the environment with the cat and observe more natural behavior.

If you wish to incorporate group housing, consider that it is best to design several small cat housing areas rather than one large one. This is better for disease control and allows you to separate cats into different life stages and into smaller groups, which is less stressful for each individual cat.

**Going the Extra Mile**

We are gleaning new evidence every day that the quality of an animal enclosure has a profound effect on the animal. Decisions that may seem small can be very important from the perspective of animals in care.

Cats:

* Consider providing some options to house cats in vertical environments rather than horizontal environments. Cat runs, or even repurposed dog runs, can provide excellent environments for cats that need more space.
* Eliminate noise. Cat housing areas should be free from the noise from dogs, mechanical equipment, and other cacophony. Use quiet latches and hinges on feline housing. Consider providing soft music to create a more peaceful environment.
* Provide large resting platforms and hiding areas.
* Consider the view. Whether a cat is in a hospital setting or shelter, providing a pleasant view for the cat can reduce their stress levels. Cats can be placed against windows with views to the outside.
* Keep cat wards warmer. A cat’s thermoneutral zone is 85 degrees. In cool, drafty rooms, cats will spend undue metabolic energy staying warm.

Dogs:

* Reduce Noise. In addition to noise prevention techniques, spend effort and money to reduce reverberant noise within dogs’ environments.
	+ Provide high noise reduction ceilings. Today’s products can reduce up to 95 percent of reverberant sound.
	+ Provide noise baffles on walls to further reduce reverberant noise.
	+ Insulate kennel panels to reduce banging noises.
	+ Provide sound isolation walls between dog rooms and around them to prevent barking noise from leaking from one space to the next.
* Create activities for the dogs. We know that social activities help dogs that are housed for any length of time. So do other repetitive positive activities, including:
	+ Kongs and other treats.
	+ Dog TV. A shelter we worked with rolled in a TV at the same time every day for the dogs to watch an Animal Planet program. While we don’t know that dogs enjoy TV, they certainly enjoyed the routine and the distraction that the activity provided. This government run shelter had remarkably calm and quiet dogs!
* Provide radiant in-floor heating in enclosures. This heating is kept at a much lower temperature than it would be if used as a room heating source (65-70 degrees depending on the dog’s age or health status) but it helps provide a comfortable surface for the dog to lie on, and assists with drying the floor slab, which is a huge bonus in any humid climate. Radiant heating can be used in shelters and veterinary environments.

**Summary**

Focusing effort on the design of animal housing doesn’t have to take more physical or operational resources. In shelters, low-stress environments are linked to shorter stays and more positive outcomes. In hospitals, low-stress environments are linked to more positive outcomes for patients and more return visits from clients.

Animal-centric housing can be created with the same square footage, just distributed in different ways, based on the requirements of the animals in care.

Sound reverberant ceilings don’t cost more than older style, loud drywall ceilings. Good caging doesn’t cost more than older style, concrete block runs.

Enrichments such as treats, hiding boxes, dog beds, etc. can be provided with minimal costs. Dog play groups can be staffed minimally.

Given all the positive results, we see no reason not to create better environments for animals.

**References**

1. D. Wagner, et. al. “Elimination Behavior of Shelter Dogs Housed in Double Compartment Kennels.” PLOS. May 13, 2014. Journals.plos.org.