Building a low-stress, pet-friendly practice

Heather E. Lewis, AIA, NCARB

Animal Arts

Boulder, Colorado, United States

Designing and building a low-stress, pet-friendly hospital is wholly dependent on considering how animals are affected by their environments. Different situations, different stimuli - including new sights and sounds and smells - and different environments are all stress-inducing scenarios for animals.

But by viewing the veterinary hospital environs from the animals’ perspectives, we can provide approaches designed to create positive, stress-free relationships between pets and veterinary practices.

We can break down the elements of a well-designed hospital building into six categories:

* Floor plans.
* Design for dogs.
* Design for cats.
* Animal housing.
* Lighting and sound engineering.
* Mechanical engineering.

Floor Plans

Stress reduction should start before the pet even enters the building. Does your practice require a waiting room, or can your patients be directed from the parking area directly to an exam room either via a small greeter’s desk or into an exam room with an outside entrance?

If a waiting area is essential to your practice style, one alternative, in the appropriate climate, would be to build a porch large enough to accommodate waiting clients so pets can benefit from being out-of-doors. For indoor waiting, consider creating different seating areas within the space so cats and dogs can be separated.

In fact, separation of species is a concept that can and should be carried throughout the hospital. Separate areas are defined as spaces that are physically separated by noise, ventilation, and visual barriers so dogs cannot hear, smell, or see cats and vice versa. One way to begin to incorporate this concept is to designate at least one exam room for cats only.

Within treatment areas, it is also ideal to develop strategies for blocking a patient’s view of other dogs or cats that are receiving treatments. There may be some limitations to this idea in critical care hospitals where monitoring of patients is the number one priority, but within the confines of the type of medicine you practice, consider reducing the stress of one animal watching treatments on another.

It is acceptable to provide glass above dog and cat eye-level between the divided treatment areas to allow the hospital to remain visually connected for doctors and staff.

Just like separate treatment areas, separate ward areas are defined as spaces that are physically separated with noise, ventilation, and visual barriers so that dogs cannot hear, smell, and see cats and vice versa. Because dogs routinely make noise in wards, dog wards and cat wards should not share a common wall, and there should be at least two doors between housed dogs and cats to prevent sound leakage when one door is opened.

Generally the focus is on the separation of dogs and cats, but hospitals seeing a large number of birds and/or exotics should also develop separate areas for housing and treating these pets.

Design for Dogs

Dogs will generally reveal their distress through barking, shaking, whimpering, hiding and other visible behaviors. In other instances, dogs will shut down behaviorally which can be mistaken for non-compliance.

The goal for creating stress-free environments is to minimize all types of fear reactions, those both outwardly displayed and internalized. The goal is to act, not react. For example, instead of focusing on the control of barking noise, the aim is to prevent the stressors that cause dogs to bark.

Exam rooms. An outdoor exam and treatment option is a great tool for some dogs that are terrified in hospital settings. Dogs can avoid the indoor areas of the hospital by coming directly to the outdoor exam room or treatment area from the parking lot. In order for this option to be viable, outdoor treatment areas must be at least partially covered for comfort and all-weather use, cleanable, and fully enclosed with non-climbable fencing for safety.

Indoor exam rooms should be designed to be large enough for dogs to be examined or treated on the floor with enough space for owners and medical staff to easily move around the dog.

Non-slip flooring. Reducing the possibility of slips, trips, and falls (STFs) has become very important within the human healthcare industry. This pressure to make human hospitals safer has created new medical flooring options that can also be used in reducing stress for dogs in veterinary hospitals. The fear, and the real possibility, of slipping and losing footing is a common problem for canine patients but it is one that we can avoid.

Non-slip flooring should be considered for each of the following spaces in a hospital:

* Client areas - lobbies and exam rooms.
* Treatment areas.
* Wards.

Non-slip flooring is defined as flooring that provides a coefficient of friction (COF) of at least 0.60 when wet, according to ASTM D2047. Designers can readily obtain COF data from product manufacturers. In addition to achieving this standard, the floor must look solid to dogs, and should not have a high gloss or polished surface, as this can create the psychological impression that the floor is slippery. The following flooring types qualify:

* Safety sheet vinyl floors. Many of these have COFs of 0.80 or greater when wet. New safety floors are easier to clean than their older counterparts, and can be manufactured without a sparkly appearance. With proper installation, some safety sheet vinyl products may even be used in wet areas of buildings, and therefore may be used throughout a hospital.
* Safety vinyl tile. This inexpensive product is not acceptable for wet areas or areas requiring high sanitation.
* Rubber tile and sheet flooring. Rubber products don’t typically seal well around drains so they are often limited to the dry areas of hospitals, but otherwise rubber flooring can be an excellent choice. Rubber flooring also helps to reduce acoustical reverberation within a space.
* Some porcelain tiles. Tile has to be selected very carefully to balance cleanability with slip resistance, particularly when the tile is wet. Epoxy or urethane grouts should be used to create a sanitary finished surface.
* Some resinous flooring. The problem with resinous flooring (epoxy, etc.) is that in order to achieve the proper wet COF, the floor can be difficult to clean. It is helpful to work directly with the flooring manufacturer to find the best balance between cleaning protocols and safety.

Design for Cats

Cats are highly susceptible to fear and stress in uncertain surroundings, particularly veterinary hospitals. Some known feline stressors that occur in veterinary settings include: confinement, transport, changes in environmental temperature and/or ventilation, light patterns, unfamiliar smells, noises, dogs, other cats, irregular schedules, unpredictable handling, the presence of unfamiliar human contact, the inability to engage in natural feline behaviors, and the lack of control over environment.

Cats brought into the hospital in carriers should have a towel draped over the carrier and should be placed off the floor on a raised, stable surface. Feline waiting and exam rooms should be equipped with tables or countertops to rest carriers.

Feline exam rooms should include a variety of enrichments to help ease fear through play and exploration. Include a climbing structure in the exam room to allow cats a choice of vantage points. The structure should be low enough so that cats can be retrieved, with enough distance from the ceiling to ensure cats don’t escape into the ceiling space or onto the tops of cabinets. Windows that provide cats with a view to the outside can also be stress-reducing.

Within a cat’s enclosure it is important to have both an option for privacy and an option for an unobstructed view out. Traditional vertical cage bars restrict the view for the animal. Stress-reducing cages employ horizontal barred gates with unobstructed views out of their environments. Privacy screens can be attached to these bar gates, allowing the cat a hiding space when it is medically appropriate.

Enriching an enclosure for a cat in a medical setting is a difficult task. That said, some degree of enrichment is important to provide housed animals with a sense of control and comfort.

Animal Housing

While pets do not typically stay in hospitals for extended periods of time, a well-designed enclosure is still important to reducing fear and promoting health.

One tool for reducing stress in housing areas is to separate dogs by their level of reactivity and other behavioral needs. This can be achieved by including more than one dog ward within your hospital. Another option would be to create some fully-enclosed rooms for individual dogs. These are effective for reducing the level of fear and reactivity in dogs for the following reasons:

* Dogs will have greater sound isolation from one another.
* Dogs will have greater air flow isolation from one another.
* Dogs will have a greater sense of defensible space.

Options for providing stress-reducing wards doesn’t end with the rooms themselves. The design of the housing and caging also plays an important role for a variety of reasons.

The slamming sound that cage doors make when they are closed and the creaking sound they make when they are opened can be avoided with improved products. Most manufacturers now produce quiet latches that click shut rather than slamming. Choose both quiet latches and hinges, if offered by the manufacturer.

Fear and agitation can be caused by reflective surfaces, especially among cats. Low-stress housing must be manufactured with low-gloss interiors. Based on cats’ and dogs’ abilities to see into the UV spectrum, some bright white plastics should also be avoided. Matte-finish stainless steel, high-pressure laminate, and light-colored resin products are all more appropriate choices.

For dogs, the balance between visual isolation and visual connection is tied to the needs of the particular dog, whether the dog is being housed for long or short periods, and whether a visual barrier is temporary or permanent. Permanent barriers on the fronts of kennels are not always appropriate because they can encourage some dogs to jump up to see out.

Given that dogs in medical settings are housed for short periods, most will benefit from the ability to see out of their enclosures. Based on a balance of the information available, provide the following:

* Dogs do poorly when facing each other at a close distance in dog wards. A design that prevents dogs from looking at other dogs across an aisle is best.
* The possibility of a clear view out of the enclosure at the dog’s eye level.
* The possibility to put up a temporary barrier for the extremely fearful or anxious dog. (Note that dogs with critical medical conditions should remain fully visible.) A simple sheet or towel hung on a run door will work. A manufactured product that serves the same purpose can also be purchased. Barriers should not be part of the permanent design of the kennel door.
* Greater privacy on other portions of the run to give the dog a sense of enclosure. For example, it has been established by a majority of experts that isolation panels between runs are necessary.
* If glass is used, the room must be ventilated through the enclosures for proper air flow.

Because dogs vary so much in size, the rules of thumb require discretion and interpretation from the hospital management team and the design professional. Healthy adult dogs must be able to move freely and express normal behaviors and assume normal postures within their enclosures to meet basic animal welfare standards. The only exception that applies is a necessary restriction of movement for medical reasons. Thus, if a healthy dog is too large to physically turn around in a cage without touching the cage walls, he should be housed in a run.

Runs in medical settings should be wide and shallow rather than deep and narrow. Deep and narrow runs promote poor behaviors and make the relationship between the dog and the caretaker more difficult. Wide and shallow runs encourage natural interactions between dogs and caregivers, allowing more space for staff to position themselves next to the dogs. These enclosures are also designed better for the size and shape of a dog.

Stress-free environments for healthy cats must also allow for normal behaviors and postures. A 36-inch-long cat cage will allow for this type of movement more effectively than the typical 24-inch cages.

Lighting and Sound Engineering

Daylighting - The benefits of daylighting have been well-established. They include:

* Reducing patient recovery time.
* Improved staff productivity in office environments.
* Improved retail sales.
* Improved performance in education settings.

Due to the fact that dogs and cats are psychologically similar to humans, daylighting provides the same healing benefits. Below are some criterion for effectively included daylighting in your building:

* In moderate climates, develop open plans, oriented on an east/west axis, that have a greater connection to the out-of-doors.
* In the Northern Hemisphere, window openings on the south side are most effective. These openings can be designed with overhangs that let in the low winter sun but block the high summer sun.
* Reduce glare. Avoid conditions where direct sunlight can come through a window or skylight without being softened by a translucent glazing system, louver, or sunshade.
* Locate openings in ways that benefit your animal patients the most.

There are a variety of ways to incorporate daylighting including windows to the exterior, high light shelves and clerestory lighting, and in the interior with overhead skylights and light tubes. Use caution when incorporating skylights to ensure a balance between daylighting and the introduction of too much heat.

Dimmable lighting. The veterinary industry has traditionally recommended a lighting level of 50 foot candles (fc) for areas where patients are examined, which may also include wards. This level of bright lighting can be stressful for patients, so lighting should be designed to dim or step down to 30 fc or less when full lighting levels are not required.

Animals’ hearing. The range of hearing for humans is 25 Hz – 20 kHz. Dogs hear ranges from 20 Hz up to 50 kHZ and cats hear frequencies measuring from 25 Hz – 64 kHz. In other words, dogs and cats hear high-frequency sounds that cannot be heard by people. In a building, high-frequency sounds may be emitted from electronic equipment, motors, and lighting.

In addition to these high-frequency noises, buildings typically emit low-frequency rumblings from mechanical systems. These low-frequency sounds have been shown to be stressful for humans, and may also be stressful for animals.

Considering that animals hear noises we don’t hear, and hear them better, preventing mechanical noise and vibration is a critical goal for designing stress-free, healing spaces for animals.

Here are some tips to prevent unnecessary noise from reaching animals in your hospital:

* + Locate rooftop mechanical equipment over spaces other than animal wards.
	+ Provide mechanical equipment with internal vibration isolation.
	+ If you have an existing building, replace any old fluorescent lighting with new fixtures utilizing electronic ballasts. This will eliminate the buzzing noise that old fixtures emit.
	+ Locate other motors and mechanical equipment such as housekeeping vacuums, medical suction pumps, etc. in remote closets far away from animal and medical spaces.

Mechanical Engineering

Indoor air quality affects the wellbeing of people and animals. While it is unlikely that a few hours in a poorly ventilated animal hospital can result in any lasting impact, veterinary hospitals are especially prone to poor indoor air quality because of odors, humidity, chemicals, heavy cleaning, and hair from pets. Research about the effects of building ventilation systems on both people and animals reinforces the idea that stress-free, pet-friendly hospitals should be ventilated with care and expertise.

Separation of species. Once again, separating dogs from cats has its advantages. In this case the requirement is to separate air exchange between dog and cat exam rooms, treatment and ward spaces. This separation may be achieved by 100 percent exhaust systems, or by providing separate mechanical units to serve the dog and cat areas of the building. The latter is a more practical approach for exam and treatment spaces that do not otherwise require 100 percent exhaust.

Negatively pressurize ward spaces. Differential pressurization is a well-known tool to control the spread of odors and airborne contaminates in hospitals. Ward spaces must be negatively pressurized, meaning that more air is exhausted than supplied from these spaces.

Air exchange minimums. More air needs to be exchanged in animal wards than in offices to comply with accepted animal health standards. At minimum, 12 - 15 air changes per hour are required in animal wards. The number of recommended air changes varies on the configuration and use of the ward. For rules of thumb, use these guidelines:

* + Isolation wards should have 20 - 30 air changes per hour depending on the disease isolated and the size of the room. Small rooms need more air changes than large rooms.
	+ Run wards need 12 - 15 air changes per hour.
	+ Dog cage wards need 12 - 20 air changes per hour to control odors, unless the air is vented through cages.
	+ Cat cage wards need 15 - 20 air changes per hour to control odors, unless the air is vented through cages.

Ventilated caging. One of the biggest problems with housing animals in cages is that the cage itself is a barrier to adequate room air exchange. The solution to this problem is to provide individually ventilated cages. Individually ventilated cages are relatively simple to use. Air is supplied in front of the cage, is pulled through the cage, and is then exhausted from the top into the building exhaust ductwork. The simplest installation for ventilation of cages is to build the cages in permanently.

While ventilated caging may seem to be an extravagant expense for a hospital, ventilating through the cage generally allows for the overall room air exchange rate to be cut down. Therefore, if you are housing a number of animals, vented caging can pay for itself.

Pheromone dispensers. The use of pheromone dispensers can be very useful in reducing stress in spaces where species are separated. Locate enough power outlets in cat and dog wards, exam rooms and treatment areas to plug in pheromone dispensers to allow for the buildup of pheromones in these spaces.

Summary

The design of a stress-free, pet-friendly practice originates from a very simple idea. By considering all of the spaces within a hospital from our animals’ perspectives, we can create environments that are more responsive to their needs and health. This new point of view is beginning to shape the forward momentum of the veterinary industry and can help you differentiate your practice in today’s market.