

# Blueprints

Design trends and ideas for your veterinary hospital

## Separate room, equal care

*An isolation room may be the least used but most important space in your new hospital.*

By Julie C. Gurnon

The emergence of canine influenza several years ago reminded veterinarians, team members, and clients that contagious diseases in animals can emerge and spread quickly and unexpectedly. Whether it's canine influenza, feline leukemia virus—or any other infectious disease affecting small, large, and exotic animals—every practice needs a contained area that's designed to treat infected patients and protect other patients from contracting the disease.

An isolation room fulfills these specific and important purposes. To help you maximize your investment in this special space, Bryan King, AIA, and Wayne Usiak, AIA, NCARB, who specialize in veterinary hospital design, share their isolation room essentials.

### Location and size

"You don't want the room shoved back into a corner and forgotten about because patients in isolation need careful monitoring," says King, a principal with Animal Arts/Gates Hafen Cochrane in



The isolation room at South Suburban Animal Hospital in Perrysburg, Ohio, features a stainless steel cage bank, run with hose station, central oxygen, exam table, and sink for handwashing. Isolation rooms are a requirement for American Animal Hospital Association (AAHA) accreditation.

Boulder, Colo. "On the other hand, it's ideal to locate the room near a back or side entrance so pets can be brought into the hospital without going through the lobby or treatment areas."

Usiak, the founder and CEO of BDA Architecture P.C. in Albuquerque, N.M., and cofounder of the firm's in-house construction division, CMP Inc., also stresses the need to locate an isolation room out of the traffic flow yet close enough to the staff for visual monitoring. "The door to the room must open into an area where no other pets circulate," he says. "If possible, one of the walls should be located on a circulation corridor or treatment room."

King and Usiak recommend an average size of 8 ft by 10 ft for

medium-sized facilities to accommodate the necessary equipment. Smaller practices could probably make do with a 6 ft by 8 ft room, King says, although this size could not accommodate a single dog run. Large facilities can elaborate even more, with separate rooms for cats and dogs and anterooms for gown changes, footbaths, and other sterilization procedures.

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### Equipment and materials

Patients in isolation typically require examinations, fluid therapy, and blood tests, so every isolation room needs these four pieces of equipment:

- a cage or cage bank (parvovirus and isolation cages are an option)
- examination table
- sink
- storage for needles, gauze, rubber gloves, disinfectant.

Fortunately, experts like King and Usiak can offer a host of cost-effective ideas that every owner-to-be can appreciate. For example, Usiak recommends equipping an isolation room with a small stainless steel tub table (approximately 4 ft long) with a gooseneck faucet and a grate top. "You'll have a table for conducting examinations, a tub for bathing soiled patients, and a sink for hand washing," he says. Choose a table with a tub insert that has cabinet and drawer storage underneath, and you've satisfied three of the four essentials listed above—with one piece of equipment.

You have other options, too. If you opt for a separate examination table and sink, King suggests a wall-mounted examination table that folds up when it's not in use. You can also preserve precious floor space by installing a cabinet or shelves above the cage bank and installing IV tracks in the ceiling, he says.

As for materials, think sanitation. Usiak recommends installing walls and floors that can be hosed and sanitized, which would necessitate a floor drain, a hot-and-cold hose station, and several GFI (ground fault interrupt) power outlets in the room. The most cost-effective and durable option for walls, King says, is fiberglass reinforced plastic (FRP) panels. For floors, King suggests vinyl floors with welded seams and a flash cove base (the floor rolls directly onto the wall).

### Lighting, visibility, and ventilation

If you can locate the room on an outside wall, Usiak encourages adding a window to let fresh air and natural light in and bad odors out. Otherwise, good overhead lighting—similar to the lights installed in a treatment area—is all you need, King says.

To keep a close eye on recovering patients without always having to enter the room, install large windows in doors or on one wall—or both. You could even opt for a full-glass door.

Of course, the most important element of an isolation room is ventilation. Both King and Usiak say that the only item you need to install is an exhaust fan. The fan performs two functions. When it runs continuously, the fan creates negative air pressure in the room, which means that more air is pulled out than drawn in. Second, the fan removes 100% of the air in the room and discards it outside so that the air can't recirculate anywhere in the hospital.

To help control disease and combat odor even further, King



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When purchasing isolation cages, choose elevated cages that allow for easy patient monitoring, clean up, and waste removal.

advises owners to maintain an air exchange rate of 15 air changes per hour for an 8 ft by 10 ft room.

Now that you know the essential elements of an isolation room, you can begin to plan the best one for your new hospital. When all is said and done, you'll appreciate the extra peace of mind that comes with knowing your patients are well protected against infectious disease. ♦

*Julie C. Gurnon is a freelance writer and editor in Olathe, Kan.*



## SHOR-LINE Showcase



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## Design FOCUS

### The unseen enemy

*Flush danger down the drain with new plumbing concepts.*

Your practice is a battlefield for fighting sickness and disease. But sometimes the battlefield itself can become a breeding ground for disease and bacteria. In veterinary practices, traditional water supply and waste removal systems are primary sources for fecal-oral transmitted disease, pathogens, stale water, and odor. But a new concept on what an efficient water supply and drainage system looks like could help eliminate the threat posed to your patients, clients, and employees.

C. Scott Learned, MS, PE, is president of Design Learned Inc., a consulting engineering firm in Norwich, Conn., that specializes in the engineering of building systems for veterinary practices. Learned discussed the importance of installing strategically designed water supply and waste removal systems in his presentation, "Building system engineering issues in animal care facilities," during the 2007 *Veterinary Economics* Hospital Design Conference.

He says that for a practice to be as biohazard free as possible, changing each system's infrastructure and setting benchmarks for water equipment is necessary.

#### Traditional water supply systems

There are two main problems with traditional water supply systems. One is stagnant water. Designed with large pipes, traditional systems allow a high volume of water to settle. This causes stale water and raises the odds of pathogen development.

The other problem is water pressure loss. Water equipment like animal cage cleaning systems, hand washing sinks, and dishwasher machines require high water pressure. Water pressure can drop when different areas of the practice (e.g., laundry, bathing, pressure washing) run simultaneously. Temperature drops

in fixtures removed from the building's water heaters are another problem.

#### Supply water loops

To keep water flowing with equal pressure, Learned recommends installing supply water loops. Unlike conventional systems, water loops are arranged to permit water flow from either direction of the loop. The primary supply loop, composed of larger-diameter pipes, balances pressure throughout the system and ensures that water availability at one fixture is not compromised by high water usage at another. A recirculating pump keeps hot water moving through a hot water loop (via a hot water return line) to prevent drops in temperature.

In addition to the recirculating pump, Learned recommends installing two or three water heaters at remote points in the supply loops to ensure that hot water originates close to the point of consumption. This also gives you a backup in case one heater fails.

#### Waste removal systems

Waste removal systems are composed of two lines: the hair line and sanitary waste line. The hair line collects from fixtures where hair and debris are typically in excess (e.g., kennel trenches, grooming areas, play areas). Learned recommends using enclosed trench drains with plastic, removable grating and hair traps for easy cleaning. Metal grating should not be used, as it can have sharp edges from the manufacturing process. Dogs' toenails can get caught and injuries can result.

Solid waste can easily be removed using flushing fixtures in kennel zones, Learned says. Flushing fixtures allow for disposal in the shortest distance without transporting potential contagions within the practice. Learned also recommends that removal drains be grouped together in centralized islands in each animal enclosure zone for the same reason.

Although not medicine, these measures can act as an automatic weapon against health risks that can often go unnoticed. They will also help you continue to do what you do best—keep those you serve out of harm's way.