

Facility Design, Shelter Animal Housing and Shelter Population Management

This information sheet includes links to many resources describing shelter best practices, and the designs that support them, as well as photographs and drawings illustrating the concepts. Particular attention is paid to including Capacity for Care (C4C) in any shelter design.

When designing a new facility or remodeling the current facility, it is important to think about not only the type of housing that will be used, but also the appropriate number of housing units to have for each type of animal that the shelter cares for. Determining the number of housing units is based on past intake and outcome trends as well as the shelter's Capacity for Care (C4C) – the ability to provide all animals in their care with the [Five Freedoms of Animal Welfare](#). Understanding this and developing population management strategies to achieve C4C will allow the organization to be successful in the new/remodeled facility in terms of providing outstanding welfare (for both animals and staff) and positive outcomes.

General Recommendations for Dog and Cat Housing

All shelter animal housing is restrictive - including individual cage, individual kennel, individual room and group housing. Length of stay can have a profound effect on animal health and well-being with longer stays most commonly resulting in negative effects. Most animals entering the shelter will adapt to shelter housing; however, there are individuals that will not. Identifying these individuals early in their shelter stay and having alternative housing that better meets their needs at the ready—including out-of-shelter housing—is imperative. Incorporating an assessment of the housing fit for the individual animal into daily rounds is highly recommended.

A cornerstone of successful shelter design is determining the right size and type of animal housing. To meet animal needs, reduce animal stress and allow staff to care for animals safely and efficiently, housing should be [double-compartment](#). These recommendations intend for all animals to be housed individually (exceptions: mothers and offspring, bonded pairs, juveniles, purpose-designed group housing). The housing recommended will meet most animals' needs for up to about a two-week shelter stay.

If animals are expected to be housed in the shelter for periods beyond two weeks—a long shelter stay—then accommodation for additional needs must be provided: more housing space, more out-of-housing time, and provisions for behavioral needs according to the individual animal. The housing recommendations offered here are not intended for long shelter stays.

In order to provide the best care for short stays, shelters should:

- Provide a variety of housing types to better meet individual animal needs.
- Have no more than 80% of housing occupied at a given time. Open housing units are a must for shelters to function effectively day to day.
- Provide fresh clean food and water daily.

In general, all individual shelter housing for dogs and cats should:

- Allow for separation of species. Dogs and cats should never be housed concurrently in the same areas.
- Include two compartments, each of adequate space for any animal housed, which provides a main living compartment and a bathroom compartment and supports optimal daily cleaning care via spot cleaning when the animal continues to occupy the same housing unit.
- Provide a place for retreat (or hiding) within the housing unit. Examples: carrier/crate (whole or just bottom half), [hiding box](#), raised bed, [high sided bed](#), cardboard box, [curtain](#)/towel attached to housing unit door, etc.)
- Allow human/animal interaction to occur readily at the front of the housing unit.
- Maximize the floor space by utilizing raised beds and elevated food/water dishes.
- Provide choices for the animals within the housing unit (soft and hard surfaces, cool and warm surfaces, floor and elevated height spaces, hiding/retreat space, indoor and outdoor space, window viewing, etc.)
- Be located in a quiet environment. Keep entry doors to animal housing rooms closed to reduce movement of noise into and out of housing spaces, minimize loud noises – including door clanging, rattling dishes, barking dogs, etc.
- Provide natural lighting.
- Provide adequate ventilation—open barred doors generally allow room ventilation into housing spaces and are preferred over completely enclosed housing units. Any fully enclosed housing units must be individually mechanically ventilated.
- Have surfaces that are easy to clean and disinfect
- Provide visual stimulation—window views, outdoor views, view into the center of the room, etc. (avoid views into a blank wall)

Cats

Provide a variety of housing

Providing a variety of housing types (cages, sizes, and styles) allows shelters to optimize care for a wide range of sheltering and cats' needs. Locating most if not all of the cat housing in the same area of the shelter allows good separation of species and a lower stress environment for the cats as well as an efficient way to care for the cat population.



The image at left depicts an adoption room that has been designed with a variety of housing: double compartment cages along the right wall, as well as two group rooms and several individual cat rooms each with access to outside porches. Work spaces and get-acquainted areas are also shown.

Click the image to see a larger version.

Cages, Individual Room and Group Room Housing

Cats: Double compartment caging/condos

Very good feline cage housing is double compartment and has floor space that meets or exceeds 11 ft². It is the recommended smallest size of cage housing when purchasing new housing. A good option that achieves this size are two 30" wide by 28" deep by 26-30" high cage units that are connected with a side-to-side pass-through (see photo below—these are stainless steel units, but this can be achieved in nearly any caging material from fiberglass to laminates on wood core). When in a cage bank these are 5' wide and double stacked. The smallest double compartment cage that still meets cats' needs are double compartment units that exceed 8 ft². These are not recommended when purchasing new housing but can be accomplished by retrofitting existing housing—individual cages that are 24" wide and 24-28" deep by 24" high and connected side to side with a portal or pass through. When in a cage bank these are 4' wide and double stacked.

Nearly any single-compartment cages without a pass-through (used or purchased new) can be retrofitted to double compartment units by installing a [portal](#).

Plastic, quiet latches and hinges to mitigate noise can often be ordered with new units and updated on older cages. Shor-line offers conversion quiet hinge and latch kits for some of their older cages:

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Example: New 30" stainless steel cages that have had portals installed to make them double compartment

Example of cage set-up when double compartment is side to side:



Example: Two "2x2" cages retrofitted with a portal in between the two cages making a double compartment housing unit

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Example: 4' cage divided to provide a main living area and a litter box side. This is a [Shor-Line stainless steel double compartment cage unit](#). *Note: Be very careful when selecting housing units. Shor-line also has this in a 3' wide model that looks exactly the same – however the 3' unit is too small for housing cats in animal shelters.*

Example: Adoption Quad—Four compartments, 30" long by 28" deep by 30" high; all compartments are linked by pass throughs side to side and up to down. These are basically the same as the double compartment units but

Shor-Line laminate housing unit

have an additional pass-through up to down, which provides more housing flexibility. It also works well to present cats at the eye level of the adopter when the double compartment is up to down.

- This example is a [Shor-line laminate housing unit](#). Many manufactures make similar models.
- The open bar cage fronts allow room ventilation to easily enter the housing unit and are great for observation and adopter/cat interactions.

Example: sketch of double-compartment unit cage set up when pass through is up to down:

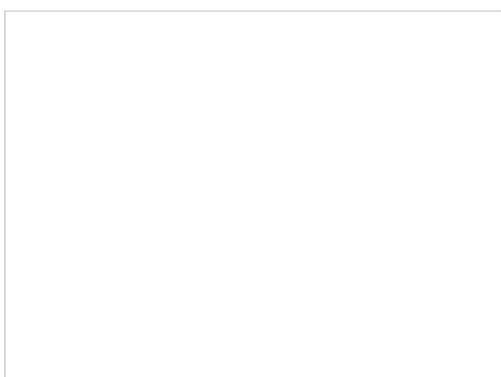
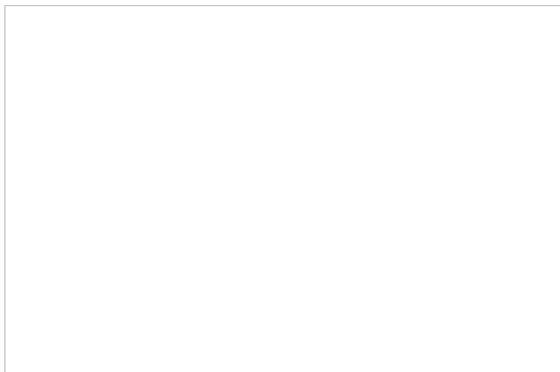
up-to-down double-compartment cage



Example of a triple compartment unit: This is a recently portalized older cage unit that has three compartments in each of two rows. The cage bank is 6' long and provides over 11 ft² of floor space. These units can work well for cage banks of odd numbers or when additional flexibility in housing use is needed: more cages can be joined for additional floor space. Stainless steel units are shown because this is a retrofit but new housing could be purchased that is made of other material and with the same triple compartment (or more) function.

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Caution: These two aesthetically pleasing, commonly seen shelter cat housing units are technically double or triple compartment but often do not work well for housing cats in shelters:



The issues with most housing with small built-in compartments:

- These units are too small in size. The overall floorspace in these has often been found to be less than 8ft² (shelving does not count towards floor space).
- The side compartments are too small to hold a normal size litterbox.
- The side compartments are not tall enough for a cat to normally posture in the litterbox when urinating or defecating.
 - When these units are made tall enough for cats to normally posture in the litter box in the smaller compartment the overall height of the unit becomes too tall for staff to easily clean. A simple double compartment cage unit with the main living area and a side litter box area (the same size as the main living area or slightly smaller) tends to work best for the cat and staff.
- Fearful cats are hard to get out of the very small compartments.
- The units are difficult to clean—especially the small compartments.
- In these two examples the glass doors are also problematic as they do not allow interaction at the front of the unit; and these units must be mechanically ventilated to have good air quality inside the housing units.

Cats: Individual rooms

- Good option to initially house a cat that is likely to stay past a 10-14 day stay or whose behavioral needs may be better met with room type housing.
- Generally recommend a 6' x 6' room or larger as this can accommodate up to two cats should there be a bonded pair or need for co-housing.
- Height should allow for a person to enter comfortably and sit in a chair.
- Single dog kennels can make for great cat housing – primarily for the individual cat, as most kennels are about 18-24ft² of floor space. A double compartment dog kennel on the other hand would provide enough floor space for two cats.
- If using dog kennels, remember that no dogs should be housed in the same area while cats are occupying these housing units.

Individual room examples:



This enterable room actually has an indoor room and an identical sized outdoor room with a cat door that allows cat to access the outside. These are located at Fieldhaven in Lincoln, CA. Notice the custom doors that have coated wire mesh to allow interaction and ventilation on the lower part of the door, a glass viewing portion in the middle and coated wire at the top to further facilitate ventilation in the cat housing space.

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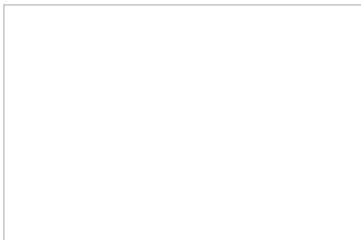
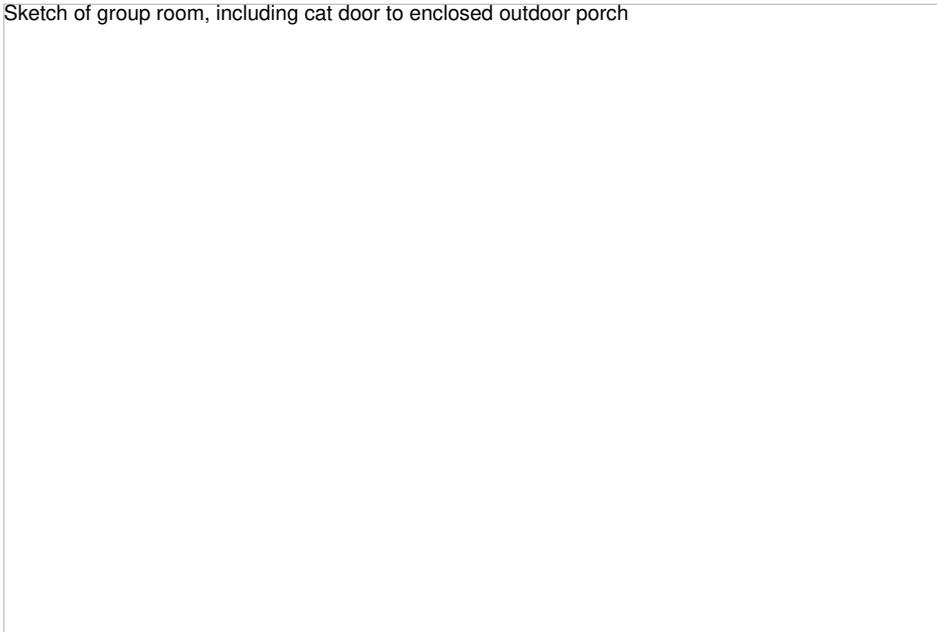
- A converted dog kennel

Cats: Group rooms

- Group rooms must include a minimum of 18 ft² of floor space per cat. Providing more floor space than the minimum can make for a more open and welcoming room.
- Best for cats > 5 months of age or related kittens/housemates (do not mix kittens from different litters in group room housing due to significant risks for welfare and health for individual as well as the feline population).
- The maximum number of cats planned for a room should be no more than ~4-6 unrelated cats with some flexibility to mitigate stress and infectious disease concerns. The number may be lower based on the personalities of the individual cats in the room.
- Consider all-in-all-out management of group rooms to mitigate disease risks.
- Include adequate access to elevated perches, hiding boxes, litter boxes, feeding stations and any other amenities needed to maintain health and well-being for each cat in the room at any given time. Furnishings should be easily sanitized or discarded following infectious disease concerns.

Example:

Sketch of group room, including cat door to enclosed outdoor porch



Cats: Other group housing

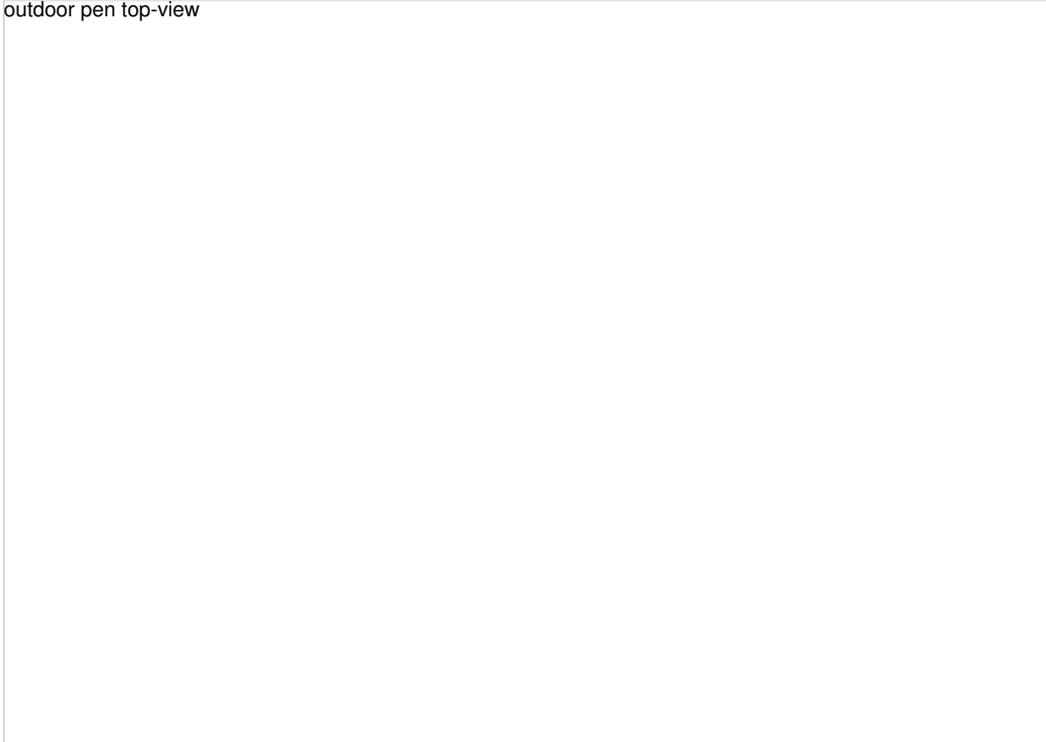
Indoor pens – these can be flexibly used – though one purpose at a time - from housing outdoor or unsocialized cats to confiscation or hoarding cases where multiple cats from the same household would benefit from group housing.



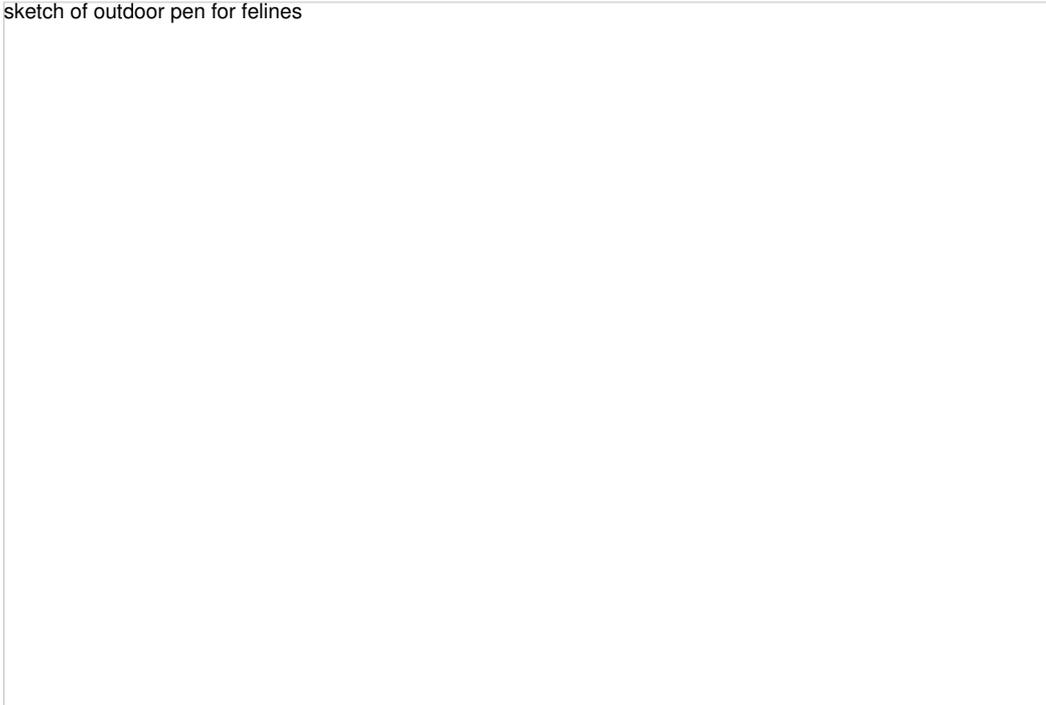
Outdoor pens – outdoor pens can group-house cats that are used to living in outdoor environments (community cats, feral cats). These can be provided as part of a barn enclosure or separate outdoor pen unit. These need to be covered and protected from wind and weather. The pens need a solid wall surface that extends up 3-4 feet. A solid back wall and between pen walls is preferred. The remaining wall surfaces can be cat-proof fencing. Additional resources may be needed to support well-being depending on the time of year (warming boxes, refuge from weather, heat, fans for cooling, etc.). These should have an enclosed front aisle creating a double door entry to the pens.

Examples of what an outdoor pen may look like:

outdoor pen top-view



sketch of outdoor pen for felines



Temporary group pens – if other more permanent group housing space is not available—can be used to house cats when there is an acute need for group-housing, such as hoarding cases, vs individual cage housing. Dog kennel type pens with tops can work well. Ideally, these could be stored and set up when needed in a room – such as multipurpose room or other more open space. In this instance – the housing isn't permanently in use so once the need is served these should be taken down and stored until needed again to help maintain normal capacity in the shelter. When setting these up, keep the needs of the animals to be housed within them in mind. This may be indoor or outdoor (with proper protection from the elements and predators). Include necessary amenities, such as food and water stations, warming boxes (when needed), adequate shelving, hiding places and vertical space.

Cats: Catio

One of the most frequent modifications to existing shelter cat housing spaces other than improving cage housing with portals is the addition of outdoor spaces.

These can be relatively easy and low cost and improve the cat experience in nearly any type of shelter cat housing:

Individual cage:

Note cat door on the right, which opens into outdoor patio space for the individual cat.



Note cat door on the right, which opens into outdoor patio space for the individual cat.

Individual room catio:

cat lounges in patio



Group room catios:



Dogs

Provide a variety of housing

Providing a variety of housing types and sizes (kennels, cages and individual rooms) allows shelters to optimize care for a wide range of sheltering and dogs' needs. Keeping most, if not all, of the dog housing in the same area of the shelter allows good separation of species and dog noise can be better isolated from the rest of the shelter environment. Design such that there are at least two doors between dog housing areas and other shelter areas.

Kennels, Cages and Individual Rooms (Real life Rooms)

Dogs: Double Compartment Kennel runs

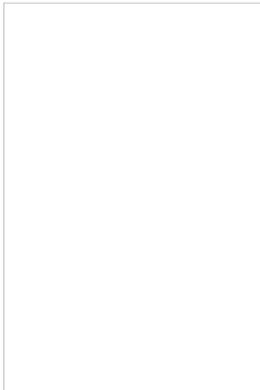
These can be indoor/outdoor or indoor/indoor kennels with a pass-through front to back. Indoor/outdoor kennels are preferred. Side-to-side pass-throughs can be substituted when needed but are less ideal for the dog's experience and for efficiency of daily cleaning and care.

Example:

Low-stress dog housing sketch by Dr. Wagner



In addition to the guillotine door, indoor/outdoor kennels should have a dog door to maintain a consistent indoor conditioned environment.



- Example (and our favorite): the saloon style door by [Biteguard Kennelplex](#). These allow dogs to adapt to using a dog door and have been found to be easier for dogs to use. One side can be propped open. The saloon style also prevents most dogs from getting caught by the door as happens occasionally with flap-style doors that swing from the top of the door frame.

General kennel size:

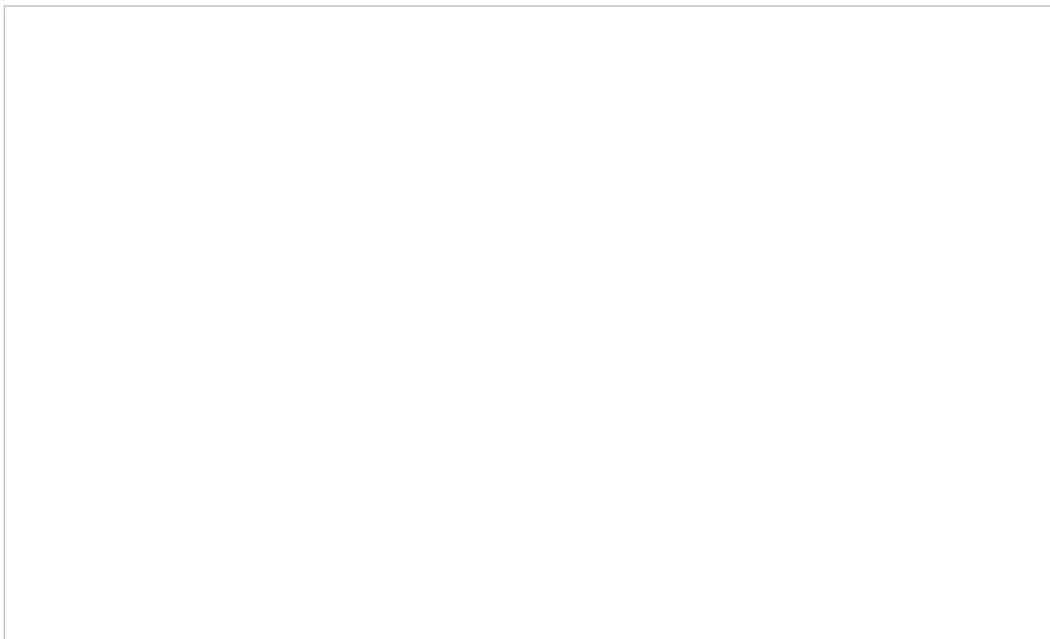
- A minimum kennel size of 4' wide by 10-12 feet long divided by a guillotine door pass-through fits most dogs. If it is expected that people will spend time with dogs within their kennels, increase the kennel width to accommodate this (~5-6' wide or greater).
- A variety of kennel sizes can be installed for a range of dog sizes.

Note: Giant breed or co-housed dogs, mom and pups, etc. should have kennels with dimensions of at least 6' wide x 10-12' long divided by a guillotine door pass through that is big enough to accommodate a very large dog.

Note: Small breed dogs and small puppies can do well in kennels that are a bit smaller. For a standard kennel unit, minimum dimensions are 3' wide by 6' long divided by a guillotine door pass-through. These kennels will have limited space for personnel to enter which may be problematic for daily care.

Dogs: Double Compartment Cage Housing

- Double compartment cages (similar to those described for cats above) can work well for some small dogs. Minimum dimensions of these units are 6' wide by 28" deep by 30" tall, divided by a side-to-side pass-through. They can be double stacked.
- Set-up is similar to a kennel where bed/food/water is on one side (along with toys and other interior choices (variety of surfaces, raised bed, retreat space, etc) and a puppy pad or paper is laid out for elimination on the other side.
- Example:



More amenities in the cage set up than shown here are desired—raised bed with draped towel to provide retreat space and a cushy bed for the dog to tuck into—but the basics of a main living side (bed/food/water) separated from a bathroom side (puppy pads that have been used) are presented here.

Dogs: Individual Room – “Real Life Room” Housing

- Double compartment is recommended and like kennels, can be indoor/outdoor or indoor/indoor.
- These rooms are often enclosed with some amount of glass for viewing, but should include design features to allow for adopter/dog interactions. Examples:
- Hybrid doors – with glass viewing panel on the upper door and bars on the lower portion with an optional panel to cover the open bars to reduce noise through the door if desired
- Dutch doors – allows for some interaction to occur without having to take the dog out of its housing space
- Set-up is similar to kennel and cage housing with additional amenities that might be found in a home, such as easily sanitized or discarded furnishings, dog bed, crate, etc.
- Retreat space should especially be provided in these rooms to allow dogs downtime when desired.

Example: This large real-life room co-houses two dogs and has access to a second, outdoor compartment for urination and defecation needs:



The room is large enough to provide additional amenities if desired. A cleanable type plastic couch and retreat space with a couple high sided beds, crates or a double decker bed would be awesome. The double decker bed and crate can provide elevated space within the housing unit which many dogs prefer.

Example: A real life room with access to a second compartment behind the main living area. This second compartment was accessed from a staff only area.

Another real life room with access to another indoor compartment

Related resources:

- Shelter housing for cats (A two-part study by Drs. Denae Wagner, Kate Hurley, and Jenny Stavisky published in the Journal of Feline Medicine and Surgery in 2018):
 - [Principles of design for health, welfare and rehoming](#)
 - [Practical aspects of design and construction, and adaptation of existing accommodation](#)
- Article in Animal Sheltering on Capacity for Care: [Finding your Magic Number](#)
- Peer reviewed article in The Veterinary Journal: [An observational study of the relationship between Capacity for Care as an animal shelter management model and cat health, adoption and death in three animal shelters](#)
- Dr. Kate Hurley's Conference Lectures from the 2014 University of Florida's Shelter Medicine Course (video recordings) – these are very good:
 - [Part 1](#)
 - [Part 2](#)
- Understanding length of stay (LOS) - [Information sheet](#)
- Calculating shelter capacity - [Information sheet](#)
- Fast track/slow track flow through planning – Fast track/slow track planning [Information sheet](#)
- Developing intake and adoption decision making criteria (includes scoring system information) - [Information sheet](#)
- Capacity for Care (C4C) / Magic Number Calculator – [Information sheet](#)
- New paradigms for shelters and community cats - [Information sheet](#)
- Facility design – [Information sheet](#)
- The [ASV Guidelines for Standards of Care in Animal Shelters](#) (PDF)