The housing provided to dogs at commercial facilities is important to their overall health and well-being. The Animal Welfare Act regulations provide detailed information on housing standards for licensed facilities. It is important to understand the regulations and make sure your facilities meet the standards established by the regulations. This course divides the topic of housing into two parts. Part One provides a general description of the types of facilities and the general structural, maintenance and other requirements applicable to all types of facilities. Part Two describes specific requirements for primary enclosures and each type of housing facility. Be sure to refer to the regulations or ask your Inspector if you have any questions about housing.

This presentation will describe the different types of housing facilities and the Animal Welfare Act standards that apply to them.

A primary enclosure is any structure or device used to restrict an animal to a limited amount of space. Examples of primary enclosures include a room, pen, run or cage.

The primary enclosure in the photo is a pen built into the facility. It provides the dog access to an outside run.

Photo: A Eaglin: USDA APHIS
Primary Enclosure: Example

This dam and her pups are housed in a cage (primary enclosure) within an indoor housing facility.

Photo: A. Eaglin: USDA: APHIS

The following slides discuss the minimum requirements for all primary enclosures.

Minimum Requirements: Primary Enclosures

Primary enclosures must meet certain minimum requirements. They must be designed and constructed of suitable materials. They must be structurally sound and kept in good repair. In addition, primary enclosures must protect the animals from injury, securely contain them and keep them clean and dry. The next slides will discuss these requirements in more detail.

General Requirements

- Designed and constructed of suitable materials
- Structurally sound
- Kept in good repair
- Must:
  - Protect animal from injury
  - Securely contain animals
  - Keep animals dry and clean

Primary enclosures must have no sharp points or edges which could injure the dogs in the enclosure. Floors must be designed so that they prevent the dog’s feet and legs from falling through spaces between slats or mesh. The enclosure must not have any openings large enough for a dog’s head or body to pass through.

Protect from Injury

- No sharp points or edges
- Floors keep feet and legs from injury (falling through spaces in slats or mesh)
- No openings large enough to allow dog’s head or body to pass through

Primary enclosures must securely contain the dogs within them. They must also prevent other animals from entering the enclosure. The primary enclosure must have enough space so the dog can turn around freely, stand, sit and lie in a normal comfortable position and walk in a normal manner. If suspended floors are used, they must be supported so they do not sag or bend.

Securely Contain

- Keep dog in enclosure
- Keep other animals out
- Enough space so dog can:
  - Turn around freely
  - Stand, sit and lie in a normal comfortable position and walk in a normal manner
- Suspended floors must not sag or bend
A primary enclosure must keep dogs clean and dry and:
- Provide shelter from extremes in temperatures or weather
- Provide shade and shelter for all dogs in the enclosure at the same time
- Have convenient and easy access to clean food and water
- Have surfaces that are able to be cleaned and sanitized
- Must be able to repair or replace worn surfaces

Dogs housed together must be compatible. Regularly observe dogs interacting with other dogs in their enclosures for signs of incompatibility. Some signs that dogs housed together may be incompatible include:
- Overly aggressive or vicious behavior by an animal toward others in the enclosure
- Evidence of wounds, especially on the legs and around the neck and face
- Ruffled or thin hair coat with signs of skin trauma (e.g., scratches or bites)
- Restriction of an animal’s access to food, water and/or shelter by another animal
- A sick, thin or weak dog in the same unit as healthy dogs, especially in the case of a puppy that is smaller or weaker than its littermates.

The Animal Welfare Act Regulations state that the following groups of dogs may NOT be housed in the same primary enclosure.

1. Females in heat (estrus) may not be housed in the same primary enclosure with males except for breeding purposes.
2. Any dog with a vicious or overly aggressive disposition must be housed separately.
3. Puppies 4 months of age or younger may not be housed in the same primary enclosure with adult dogs other than their dam or foster dam.
Compatible Grouping
4. Dogs with other animal species unless compatible
5. Isolate dogs with or suspected of having contagious disease from healthy dogs
6. No more than 12 adult nonconditioned dogs in same primary enclosure

Primary enclosures must meet or surpass requirements set by the regulations for minimum space and exercise for the dogs housed in them.

Space and Exercise Requirements

The regulations establish minimum space requirements for dogs in primary enclosures. The regulations have a formula for calculating the minimum amount of space. The image on this slide, shows a handout developed to aid in calculating the minimum space requirement. The next slides will demonstrate how to complete the calculation to determine the minimum amount of space a dog needs.

Minimum Space Requirement
• Minimum amount of space dogs must have.
• Formula for calculating minimum space requirements
• Handout shows how to calculate space

In this section, we are going to work through an example to show how to calculate the minimum space requirement for a dog in a primary enclosure. Shadow, the dog in the photo, measures 37 inches from the tip of her nose to the base of her tail. Add 6 to Shadow’s length to complete the first step of the calculation. The sum is 43.

Photo: A. Kingsbury: CFSPH

This is a video clip demonstrating how to measure a dog.

Video: A. Kingsbury: CFSPH:
Calculate Minimum Floor Space

Multiply sum from step 1 by itself
(Dog's length (in) + 6) x (Dog's length (in) + 6) = ___.

1849 sq. in. is minimum amount of floor space in square inches.

Convert to sq. ft. by dividing by 144

1849 = 12.84 sq. ft. of floor space

Next, multiply the sum from Step 1 by itself to find the number of square inches of space required in Shadow's primary enclosure.

43 x 43 = 1849 square inches

Divide 1849 by 144 to calculate the minimum amount of space in square feet.

1849/144 = 12.84 sq. ft.

Dogs in Group Housing

The total amount of floor space must meet or exceed each dog’s minimum requirement.

Height Requirement

• Measure dog in normal standing position
• Minimum of 6 inches from top of dog’s head to top of cage.

Dams with Puppies

• Separate calculation for dams with nursing puppies.
• Dog’s breed and behavioral characteristics
• Guidance from attending veterinarian

The regulations have special space requirements for dams with nursing puppies. In addition to using the formula for calculating the minimum space required, other factors must be considered including the dogs’ breed and behavioral characteristics, and guidance from the attending veterinarian. The next section will walk through the calculation for dams with nursing puppies.

Shadow has a litter of 5 puppies. From the last example, we know that she is 37 inches long from the tip of her nose to the base of her tail.

She needs a minimum of 1849 square inches or 12.84 sq. ft. of floor space

Photo: A. Eaglin: USDA APHIS

Photo: A. Kingsbury: CFSPH
The regulations require that each puppy has 5% of the dam’s minimum floor space. To calculate the minimum space needed for each puppy, take the minimum floor space required for the dam and multiply it by 0.05. In the example, Shadow needs 12.84 sq. feet of floor space. Take this number and multiply by 0.05 to get the minimum amount of floor space for each puppy. Shadow has 5 puppies, so take the minimum space for one puppy and multiply by 5. The result is the amount of space the litter of puppies needs. Shadow’s puppies need a minimum of 3.21 sq. ft. of floor space.

The total floor space for Shadow and her litter is 12.84 sq. ft. (Shadow’s minimum floor space + 3.21 sq. ft. (space needed for 5 puppies) for a total minimum floor space of 16.05 sq. ft.

The regulations also set out a requirement for creating a written exercise plan. The exercise plan requirement applies to all dogs except dams with nursing puppies and dogs under 12 weeks of age. In some cases, the exercise plan requirement can be met by providing sufficient space in the primary enclosure. The plan must be in writing and available for review by the Inspector.

This course has a separate presentation discussing the exercise plan requirement.

The minimum space requirement and the exercise plan requirement are separate regulations. However, there is some overlap.

To meet the exercise requirement, dogs housed individually must have either two times the floor space required under the minimum space requirement regulation OR other opportunities for exercise must be provided.

For dogs housed in groups, if an enclosure meets the minimum space requirement, the enclosure also meets the requirements under the exercise plan regulations.

The written exercise plan must document how the exercise requirement is met: whether through additional space or other opportunities for exercise. More details regarding the exercise plan requirement are provided in a separate presentation.
This section describes some of the other minimum requirements for primary enclosures.

### Cleaning and Sanitizing Primary Enclosures

**General Cleaning Guidelines**

Daily removal of feces, urine and food waste from primary enclosures.

**Animal Contact Areas**

Cleaning animal contact areas – Spot clean all hard surfaces that dogs come into contact with on a daily basis. Sanitize these surfaces at least every two weeks, or more often if necessary to minimize disease hazards.

**Hard Surfaces include:**
- Sealed concrete
- Sealed wood
- Ceramic tile
- Stainless steel or other metals
- Glass board
- Formica
- Non-hard/Porous surfaces include: dirt, sand, gravel, grass

Floors made of dirt, sand, gravel, grass, absorbent bedding, or other similar material must be spot cleaned on a daily basis. These surfaces must be raked or spot-cleaned often enough to ensure that all animals in the enclosure can avoid contact with the excreta. Contaminated material must be replaced when raking and spot cleaning are not sufficient to prevent or eliminate odors, or infestations of insects, pests or vermin.
All other surfaces must be cleaned and sanitized when necessary to satisfy generally accepted husbandry standards and practices. Feces, urine and food waste located in pans or on the ground beneath primary enclosures must be removed as often as necessary to prevent excessive accumulations, keep the dogs clean, and reduce insects, pests, odors and the risk of disease.

Steam and water cleaning procedures for primary enclosures:
- Remove standing water after cleaning

Sanitization: Enclosures and Receptacles
-must be cleaned and sanitized before they can be used to house, feed or water another dog or social grouping of dogs.
-must be sanitized at least once every 2 weeks or more often as needed to prevent accumulation of dirt, debris, food waste, excreta, algae, mineral deposits, other disease hazards

Sanitizing Hard Surfaces
The Animal Welfare Regulations require that one of the following methods be used to sanitize primary enclosures.
Sanitization methods: (must use one of these)
1. Live steam under pressure OR
2. Washing in hot (180 degree F) water and soap or detergent, as with a mechanical cage washer OR
3. Removing all organic materials and mineral buildup and washing all surfaces with appropriate detergent and disinfectant solutions or by using a combination of detergent/disinfectant product to provide sanitization and following up with a clean water rinse
Pens, runs, outdoor housing areas that use material that cannot be sanitized using the methods provided above (gravel, sand, grass, earth or absorbent bedding):
Must be sanitized by removing the contaminated materials as necessary to prevent odors, diseases, pest, insects, and vermin infestation.
Exposure to direct sunlight will aid in disinfecting the area

This section discusses specific requirements for indoor housing facilities.

The different types of housing described in the regulations were described in part one of the housing presentation. An Indoor Housing Facility is:
A building intended to house animals which has:
- Environmental controls to regulate Temperature and humidity and for rapidly eliminating odors.
- An Enclosed space. Which means the roof, walls and floor are continuously connected (a shed or barn set on top of the ground does not have a continuous connection between the walls and the ground unless a foundation and floor are provided)
Building has at least one door for entry and exit which can be opened and shut
Windows or openings which provide natural light must be covered by transparent material such as glass or hard plastic

The regulations have specific requirements for temperature and humidity in indoor facilities. These are in addition to other temperature requirements found in the regulations.
In general, indoor facilities must have sufficient heating and cooling to protect dogs from extremes in temperature and humidity and provide for their health and well-being.
Indoor Housing: Temperature

- Not colder than 50°F
  - Unacclimated dogs,
  - Breeds that are not cold tolerant
  - Sick, aged, infirm or young dogs
- If below 50°F provide
  - Dry bedding, resting boards, etc.

Specific requirements for indoor facilities include:

The temperature in the facility must not fall below 50°F when dogs not acclimated (accustomed or adjusted to) to lower temperatures are present. This includes breeds that cannot tolerate colder temperatures without stress or discomfort, and sick, aged, infirm, and young animals, except as approved by the attending veterinarian.

If the temperature falls below 50°F, dry bedding, solid resting boards or other methods for conserving body heat must be provided.

Minimum and Maximum Temperatures

Minimum: not below 45°F for more than 4 consecutive hours
Maximum: not above 85°F for more than 4 consecutive hours

When dogs are present, the ambient temperature must not fall below 45°F for more than 4 consecutive hours or rise above 85°F for more than 4 consecutive hours.

Illustration: Oriana Hashimi-Toroghi: CFSPH

Ventilation

- Sufficient ventilation at all times
  - Minimize odors, drafts, ammonia, condensation
  - Windows, vents, fans, air conditioning
- Above 85°F
  - Auxiliary ventilation: Fans, blowers, air conditioning

In indoor facilities, sufficient ventilation must be provided at all times for the health and well-being of the dogs and to minimize odors, drafts, ammonia, and moisture condensation. Windows, vents, fans or air conditioning may be used to provide ventilation.

When the ambient temperature rises above 85°F, provide auxiliary ventilation using fans, blowers or air conditioning.

Illustration: Oriana Hashimi-Toroghi: CFSPH

Humidity

- At a level to ensure health and well-being of dogs
- Follow directions of attending veterinarian and generally accepted professional and husbandry practices

Maintain the relative humidity at a level that ensures the health and well-being of the dogs housed in the facility. Follow the directions of the attending veterinarian and generally accepted professional and husbandry practices.

Illustration: Oriana Hashimi-Toroghi: CFSPH

Lighting

- Sufficient light for inspection, cleaning and observation of dogs
  - Natural or artificial
  - Diurnal cycle
  - Uniform lighting
  - Protect dogs from excessive light

Facility lighting must be sufficient to permit routine inspection, cleaning and observation of the dogs. Animal areas must have regular natural or artificial light in a diurnal schedule (a period of day and night). Lighting must be diffused uniformly throughout the facility and provide enough light so that good housekeeping practices, cleaning and observations of animals can be carried out. Primary enclosures must protect dogs from excessive light.

The facility in the photo uses both artificial light and natural light from the windows.

Photo: A. Eaglin: USDA APHIS
Impervious Surfaces

The following surfaces must be impervious to moisture:
- Floors
- Walls
- Surfaces in contact with animals
- Ceilings if not replaceable

Floors, walls and surfaces in contact with animals must be impervious to moisture. Ceilings must be impervious to moisture if they are not replaceable. Ceilings must be impervious to moisture or be replaceable (e.g. suspended ceiling with replaceable tiles).

Impervious Surface

Surface
- does not permit the absorption of fluids.
- can be thoroughly and repeatedly cleaned and disinfected.
- will not retain odors.
- from which fluids bead up and run off or can be removed without being absorbed into the surface material.

An impervious surface does not permit the absorption of fluids. Can be thoroughly and repeatedly cleaned and disinfected. Will not retain odors. And fluids will bead up and run off or fluids can be removed without being absorbed into the surface material.

Example: Impervious Surface

This indoor facility has sealed concrete floors and the walls are an easily cleanable surface. The ceilings have replaceable tiles.

Photo: A. Eaglin: USDA:APHIS

Sheltered Facilities: Special Requirements

A facility that provides shelter, protection from the elements and protection from temperature extremes at all times.

May consist of runs or pens totally enclosed in a barn or building or a facility with connecting inside/outside runs or a facility with inside pens totally enclosed in the building.
Temperatures:
Sheltered Portion
• Not colder than 50° F
  – Unacclimated dogs,
  – Breeds that are not cold tolerant
  – Sick, aged, infirm or young dogs
• If below 50° F provide
  – Dry bedding, resting boards, etc.

The sheltered portion of the facility must be sufficiently heated and cooled to protect dogs from extremes in temperature and humidity to provide for their health and well-being. The ambient temperature must not fall below 50° F for dogs not acclimated to lower temperatures; (breeds that cannot tolerate lower temperatures without stress or discomfort for sick, aged, young, or infirm dogs, except as approved by the attending veterinarian)
When temperatures fall below 50° F, dry bedding, solid resting boards or other methods must be used for conserving body heat must be used.

Minimum and Maximum Temperatures

Minimum: not below 45° F for more than 4 consecutive hours
Maximum: not above 85° F for more than 4 consecutive hours

The ambient temperature must not fall below 45° F for more than 4 consecutive hours when dogs are present.
The ambient temperature must not rise above 85° F for more than 4 consecutive hours when dogs are present.
Illustration: Oriana Hashimi-Toroghi: CFSPH

Ventilation:
Sheltered Portion
• Sufficient ventilation at all times
  – Minimize odors, drafts, ammonia, condensation
  – Windows, vents, fans, air conditioning
• Above 85° F
  – Auxiliary ventilation: Fans, blowers, air conditioning
• Humidity level to ensure health and well-being

In indoor facilities, sufficient ventilation must be provided at all times for the health and well-being of the dogs and to minimize odors, drafts, ammonia, and moisture condensation. Windows, vents, fans or air conditioning may be used to provide ventilation.
When the ambient temperature rises above 85° F, provide auxiliary ventilation using fans, blowers or air conditioning.
Maintain the relative humidity at a level that ensures the health and well-being of the dogs housed in the facility. Follow the directions of the attending veterinarian and generally accepted professional and husbandry practices.

Lighting

• Sufficient to permit routine inspection, cleaning and observation
• Natural or artificial light
• Diurnal schedule
• Uniform throughout facility
• Protection for dogs from excessive light

Facility lighting must be sufficient to permit routine inspection, cleaning and observation of the dogs. Animal areas must have regular natural or artificial light in a diurnal schedule (a period of day and night). Lighting must be diffused uniformly throughout the facility and provide enough light so that good housekeeping practices, cleaning and observations of animals can be carried out. Primary enclosures must protect dogs from excessive light.

Shelter from the Elements

• Dogs must have shelter from elements at all times
• All dogs must be able to sit, stand, turn about freely and lie in a normal manner

Provide shelter from the elements at all times to protect dogs’ health and well-being.
Shelter structures must be large enough to allow each animal to sit, stand, and lie in a normal manner and to turn about freely.
The following areas in the sheltered facility must be impervious to moisture:
- Indoor floor areas in contact with the dogs
- Outdoor floor areas in contact with the animals when the floor areas
  that are not exposed to direct sunlight or made of hard material such as
  wire, wood, metal or concrete;
- All walls, boxes, houses, dens and other surfaces in contact with
  dogs.

Outside floor areas in contact with dogs and exposed to direct sunlight and
replaceable may be:
- Compacted earth, absorbent bedding, sand, gravel, or grass

Examples of the outdoor portions of sheltered housing facilities.
Note that the surface of the facility on the right is grass. The surface of the
facility on the left is gravel. Both surfaces can be cleaned and replaced when
too heavily soiled.

Photos: A. Eaglin: USDA

An outdoor housing facility is any structure, building, land or premises which
houses animals or is intended to house animals which:
- Does not meet the definition of any other type of housing facility AND
- In which temperature cannot be controlled within set limits
Restrictions

These dogs may not be kept in an outdoor facility*
- Dogs not acclimated to the prevalent temperature in the area
- Breeds that cannot tolerate the prevalent temperature
- Sick, infirm, aged or young dogs
If acclimation status unknown, may not be in outdoor facility when temperature is below 50°F
* Unless approved by attending veterinarian

Shelter Requirements

- Roof, 4 sides and floor
- Adequate protection from heat and cold
- All dogs have access – All must be able to sit, stand, lie normally and turn around freely
- Protect from sun’s direct rays and direct effect of wind and rain
- Provide wind and rain breaks at entrance
- Clean, dry bedding when temperature below 50°F; more when 35°F or colder

Prohibited Structures

These items may not be used as shelter:
- Metal barrels
- Cars
- Refrigerators or freezers

Surfaces

These surfaces must be impervious to moisture;
- Building surfaces in contact with dogs
- Hard surfaces in contact with dogs
Replace when worn or soiled:
- Can’t be readily cleaned/sanitized
- Floors of compacted earth, dirt, sand, gravel, absorbent bedding or grass

Shade

Must provide separate outdoor area(s) of shade for all dogs.
- Large enough for all dogs to use at the same time
- Provide protection from sun’s direct rays

In addition to shelter, the outdoor facility must provide separate outside areas of shade. These must be large enough for all dogs to use at the same time. Protect the dogs from the sun’s direct rays.

In outdoor shelters certain surfaces must be impervious to moisture. Other surfaces must be replaced when worn or soiled.
All surfaces must be maintained on a regular basis
Building surfaces in contact with the dogs and hard surfaces in contact with the dogs must be impervious to moisture.
Surfaces which cannot be readily cleaned or sanitized – including houses, dens, etc. – that cannot be readily cleaned and sanitized must be replaced when worn or soiled.
Floors in outdoor housing facilities may be of compacted earth, absorbent bedding, sand, gravel or grass. Flooring material must be replaced if there are prevalent odors, disease, pests or vermin.

The following categories of dogs must not be kept in an outdoor facility, unless specifically approved by the attending veterinarian
- Dogs not acclimated to the temperatures prevalent in the area/region
- Breeds that cannot tolerate the prevalent temperatures without stress or discomfort (short haired breeds in cold climates)
- Sick, infirm, aged or young dogs.
- If acclimation status is unknown, the dog may not be kept in an outdoor facility when then ambient temperature is below 50 degrees F.
You should now be able to:
1. List the general requirements for primary enclosures.
2. Briefly describe cleaning requirements for primary enclosures.
3. Define and describe indoor housing, outdoor housing and sheltered housing facilities and the specific requirements for each type of facility.

Questions?

Acknowledgments
This presentation was produced by the Center for Food Security and Public Health, Iowa State University through a cooperative agreement with USDA APHIS Animal Care.