

Considerations for Handling Large Animals in Biocontainment



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Large Animals Housed in Biocontainment Facilities at NADC

Domestic Animals

- Pigs
- Sheep
- Goats
- Cattle
- Horses
- Turkeys



Large Animals Housed in Biocontainment Facilities at NADC

Wildlife Species

- ❑ Feral Swine
- ❑ White-tailed Deer
- ❑ Fallow Deer
- ❑ Elk
- ❑ Reindeer
- ❑ Bison



Safety Considerations When Handling Large Animals and Wildlife Species

Biosafety

- ❑ **Organisms used for experiment**
 - Primary barrier
 - Engineering controls
 - Appropriate PPE
 - Experimental protocols (i.e. route of inoculation)
- ❑ **Organisms/parasites carried by animal**
 - Source of animals
 - Baylisascaris procyonis in raccoons

Safety Considerations When Handling Large Animals and Wildlife Species

Physical Safety for Worker

- ❑ Animal Behavior
 - Flight zones
 - Disposition of species and animals (aggressiveness)
- ❑ Barriers between worker and animals
- ❑ Expect the unexpected
- ❑ Proper restraint of animals
 - physical and chemical
- ❑ PPE to protect against bites, etc.
- ❑ Buddy system

Safety Considerations When Handling Large Animals and Wildlife Species

Physical Safety for Animal

- ❑ Animal Behavior
 - Flight zones
 - Disposition of species and animals (aggressiveness)
- ❑ Facilities
 - Proper penning systems and flooring materials
 - Eliminate/minimize protrusions and obstacles
 - Lighting levels
- ❑ Proper restraint of animals
 - physical and chemical

Safety Considerations When Handling Large Animals and Wildlife Species

- ❑ Plan all aspects of work prior to moving animals into biocontainment**

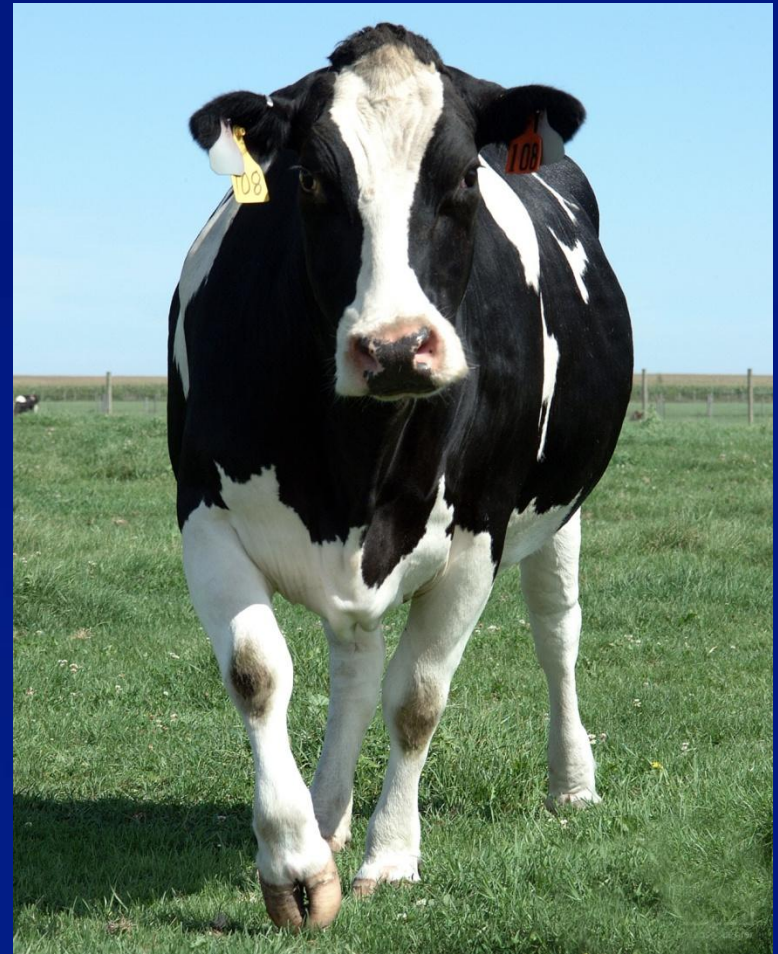
- ❑ Risk Assessments**
 - Biosafety
 - Worker Safety
 - Animal Safety

- ❑ Training of personnel**

- ❑ Performance verification of facility**

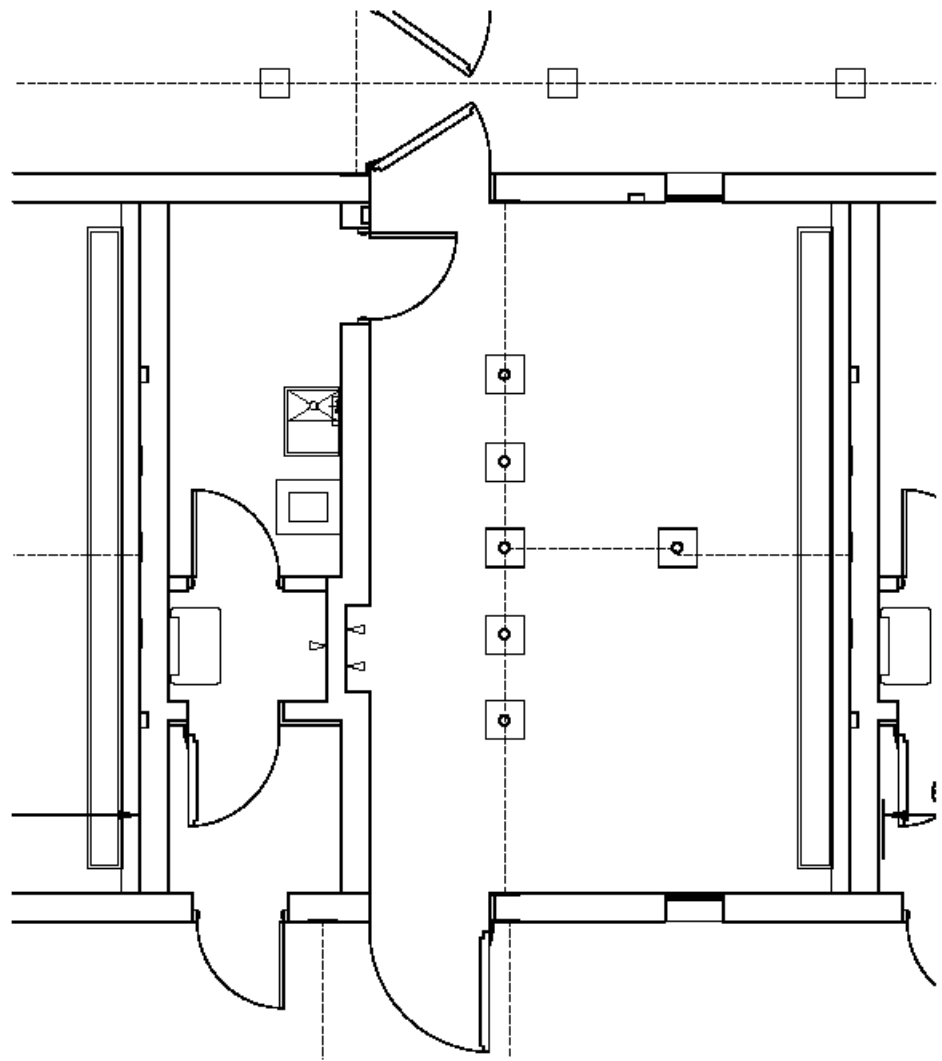
Cattle: Behavior

- ❑ **Domesticated**
 - Typically adapted to being around humans
- ❑ **Can be fractious or aggressive**
- ❑ **Can kick or charge**
- ❑ **Often curious**
- ❑ **Herd animals**
 - Best to group house



Cattle: Facilities

- ❑ **Size of animal dictates pen size**
- ❑ **Need suitable penning and gating systems**
- ❑ **Suitable flooring material**
 - Animal comfort
 - Not too slick
- ❑ **Capability to handle animal wastes**





White-tailed Deer: Behavior

- ❑ Skittish and easily frightened
- ❑ Typically flee when approached
- ❑ Prone to injury
- ❑ Will strike and kick
- ❑ Hooves are quite sharp
- ❑ Can easily jump over people



White-tailed Deer: Behavior

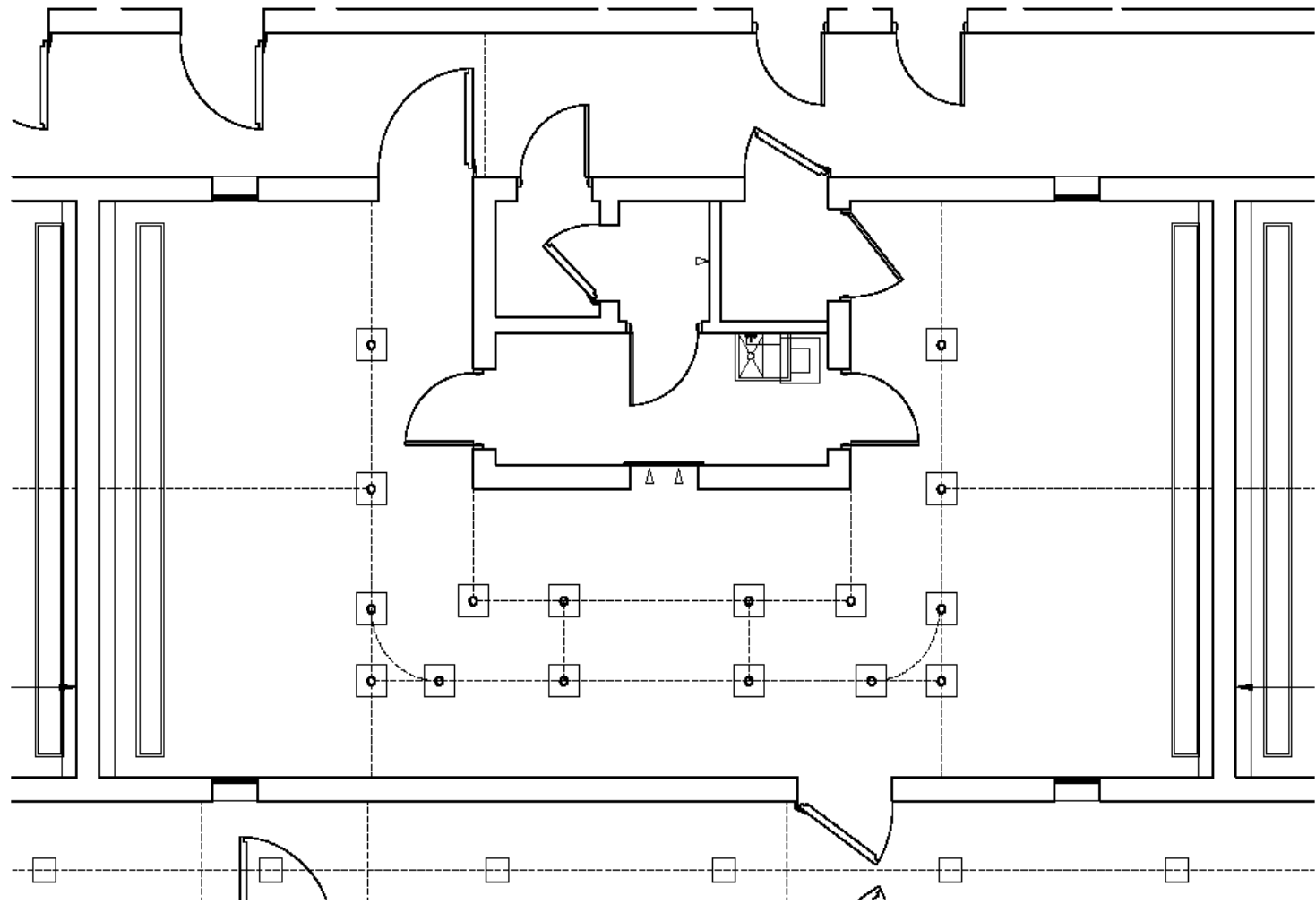
- ❑ Maintain breeding herd
- ❑ Daily presence of animal caretakers
- ❑ Bottle feed fawns
- ❑ Provide enrichment



White-tailed Deer: Facilities

- ❑ **Eliminate protrusions**
- ❑ **8' tall gates**
- ❑ **Eliminate areas where legs can get caught**
 - Decking material on standard gates
 - Panels with holes in new facility
- ❑ **Area for deer while cleaning pen**
- ❑ **Flooring material; not too slick for deer**







Bison: Behavior

- ❑ **Very powerful**
- ❑ **Requires rugged fencing and handling equipment**
- ❑ **Tend to flee when approached but can be aggressive**
- ❑ **Can become agitated if not given enough space in containment**

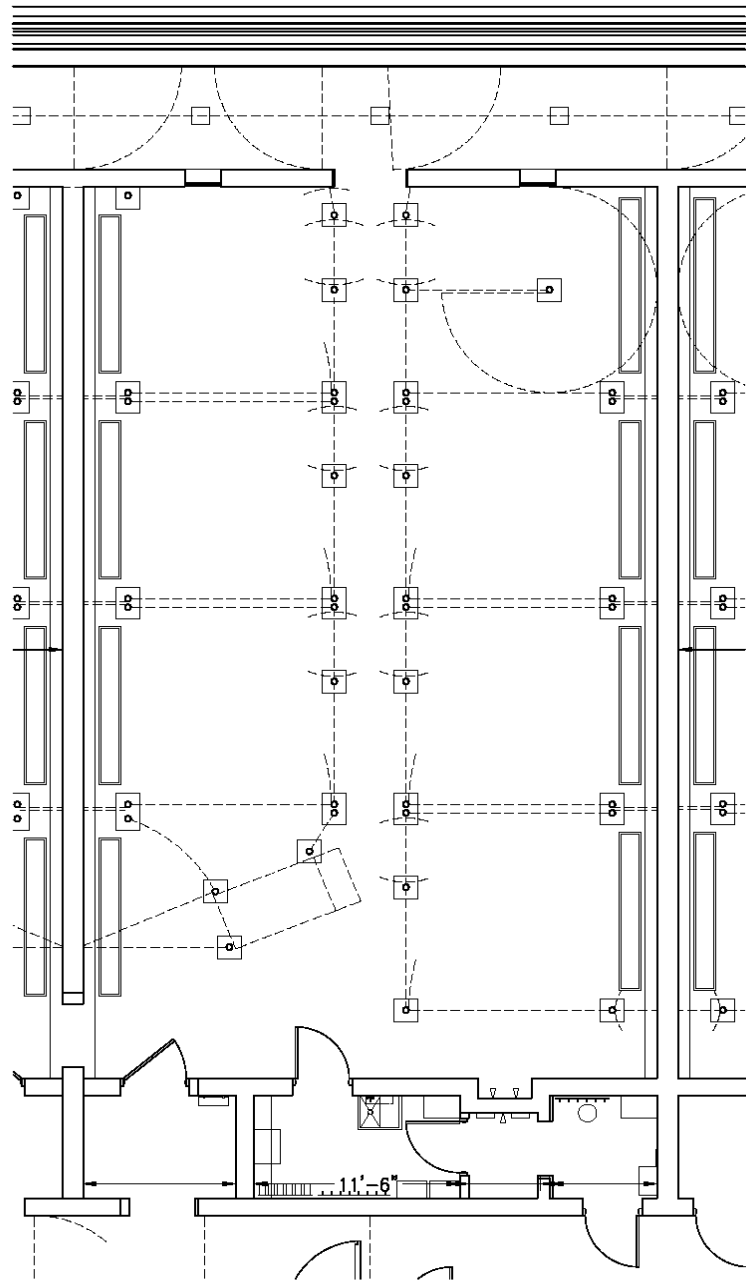


Bison: Behavior

- ❑ **NADC purchases female bison as calves and rears on site**
- ❑ **Mature bulls are purchased for breeding**
 - **Bulls can be aggressive**
- ❑ **Bison are accustomed to being around people before they go into containment**

Bison: Facilities

- ❑ Eliminate protrusions**
- ❑ Penning and gating must be rugged**
- ❑ Pen sizes must be large enough so bison don't feel threatened when someone walks in front of pens**
- ❑ Design facilities and protocols so workers do not enter pen with bison unless bison is sedated**





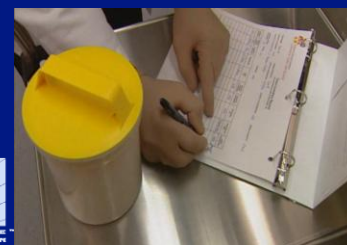
Bison: Restraint



Questions?



Discussion



For more information, please contact Select Agent Program

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Select Agent Program.



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