



# Behavioral Considerations When Housing Horses

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Livestock species all have different housing requirements based on their physical and behavioral needs as well as the amounts and types of exercise and activities in which they participate. If you prioritize the creature comforts of people over horses, you are sure to develop a facility that houses sick horses with behavioral problems. However, if you design a horse facility that provides a safe and healthy environment for the horse, you will ultimately have a functional and cost-efficient facility. Understanding some horse behavior fundamentals and housing requirements for the optimum health and well-being of horses is essential before you can design or renovate a functional horse facility.



A simple three-sided shed offers protection from harsh weather while providing good ventilation and a natural environment for the horse.

When designing horse facilities, you must consider how horses differ behaviorally from other livestock. Horses evolved primarily as **plains dwellers**. Often an object of prey for large cats or wolves, they developed a very strong flight response: flee. The flight response is a horse's main survival technique, and this single characteristic—being a preyed-upon animal—is more strongly related to how a horse thinks and behaves than almost any other characteristic. The flight instinct that helps a horse survive in the wild can lead to injuries to both the horse and humans in a domestic setting. Horse facilities should therefore be designed to provide a safe

environment for horses and the people who interact with them. Structures need to provide adequate room and safe footing for a horse to **spook** to decrease potential or severity of any injuries. Building materials need to be strong enough to withstand the horse's weight as well as sharp kicks from their hooves.

#### Definitions:

*Plains Dweller*: refers to an animal that lives in, or evolved to live in large, extensive, nearly treeless expanses of land.

*Spook*: a horse's natural reaction to run away immediately when scared.

## HERD BEHAVIOR

Horses are naturally herd animals who, when given a choice, will seek interaction with other horses instead of spending time alone. Within a horse herd, there is a social protocol that is based on dominance hierarchy. A horse's social rank may determine his eating order, his access to enter a shelter, or his ability to socialize with another horse. In most cases, the dominant horse will get to eat and seek shelter first. In some cases, a dominant horse will keep another horse away from the feed bin, shelter area, or even other horses in a group. While this hierarchal system hardly seems fair to our democratic mindset, it actually serves to keep the peace in a horse herd. The dominant horse usually only has to signal with laid back ears and exposed teeth to keep the rank and file in order. Actual physical fighting is most often avoided since the horses know their pecking order within the herd. If a horse can not get adequate feed or shelter because of its place in the pecking order, it may need to be moved to another group. However, it is important to realize that each time a horse is introduced to a group, the process of establishing that group's hierarchy starts again. When people frequently change horse groupings, they may find that their horses are "always fighting." If they let the pecking order get established, that fighting quickly settles down. Shelters that are shared with more than one horse should provide 80 square feet of floor space per 1,000 pounds of horse weight. In addition, partitions inside the shed may allow more horses access to the shelter.



Dominant horses may restrict more submissive horses' access to a shelter. Monitor your herd dynamics in all types of weather conditions. You may need to provide more than one shelter or regroup horses to ensure that all horses have adequate shelter during extreme weather conditions. (Note: The horse on the left is wearing a grazing muzzle to limit its pasture consumption while the horse on the right is sensitive to face flies and wears a fly mask.)

Most horse experts agree that allowing horses to experience socialization in a domestic setting offers a greater degree of well-being for the horses. Socialization can be offered when horses are housed together in a pasture or turned out daily in familiar groups. Horses can even socialize through a fence in adjacent paddocks. Socializing becomes harder when horses are housed indoors for the majority of the time. While there is still some group indoor housing, most horses are housed individually in a boxed stall. You can increase a horse's sense of social well-being by designing facilities so that horses can see and hear each other in a well-lit environment.

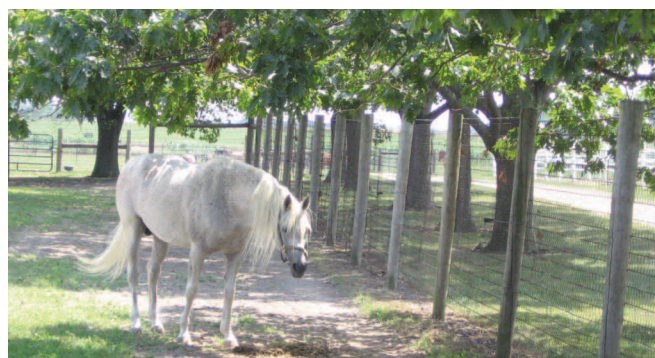


The metal bars and grids on the stall doors and side walls allow the neighboring horses to see, hear, and smell each other, providing for a more natural setting.

## STALLION HOUSING OPTIONS

Stallions can be a part of mainstream barn activity if they are correctly managed. Stallions that are completely isolated from other horses often become more difficult to manage. Providing daily turnout and exercise will help keep a stallion from developing undesirable stall behaviors. Additionally, the handler must be experienced and responsive to stallion behavior.

A stallion's sexual behavior is exhibited by his interest in mares and aggressive behavior toward horses considered to be competition for the mares. He can become excitable and vocal and is more prone to challenge a fence line and kick walls. Fence lines for stallions should be high enough so that a stallion doesn't try to jump the fence and solid enough so that his head cannot reach through the fence. A double fence line is often used with a stallion paddock to ensure that a stallion cannot reach other horses. In addition, stallions are usually housed in double-sized stalls (12- by 24-feet) to accommodate their activity level.



This stallion paddock has a seven-foot tall diamond wire mesh fence. The fence height prevents the stallion from jumping the fence or putting his head over the fence. The diamond wire mesh prevents people from putting their hands inside the fence and keeps other animals (like dogs) out of the paddock. (Note: Most horses should be turned out without halters or with breakaway halters to reduce the chance of injury if the halter gets caught on an object.)

Colts can start exhibiting sexual behavior as early as six months of age, so as they begin to show signs of sexual maturity, it is important to keep them separated from fillies and mares until they are gelded (castrated). Domesticated horses do not respect family distinctions, so a colt may try to breed his own dam or sibling. Usually,

the later a male horse is gelded, the more sexual behavior he will show after gelding. Some geldings will still exhibit signs of sexual behavior and may need to be kept separate from mares. (This does not necessarily indicate that the gelding procedure was not completed (a condition often referred to as proud cut).

## TIME BUDGET

Animal behaviorists record how an animal breaks up its day into various behavioral activities and create a time budget. Under natural conditions, horses do not spend long periods alone in an enclosed area, such as a stall. Free-ranging horses (also known as feral horses) spend nearly half the day engaged in foraging behavior. A mere 8 percent of the day is spent lying down. In comparison, a stalled horse will spend considerably less time eating and more time lying down. Consequently, when horses are kept in stalls for long periods, many become bored and develop undesirable behaviors such as wood chewing and pawing, or **stereotypic behaviors** like **weaving** or **cribbing**.

On a more positive note, a Michigan State University research study (Rivera, et al. 2002 ) found that young horses housed outside on pasture were easier to train, were more responsive to the rider, required less riding time and bucked less frequently when compared to stalled horses. Most probably, the stalled horses in the study had more pent-up energy to deal with during a training session than the pastured horses. Even adult horses are typically more relaxed and willing when returning from a pasture as opposed to being pent up in a stall. Exercise pens should provide at least 1,000 square feet per horse (12-by 80 – foot pen). If a pasture is to provide the majority of the horse’s forage needs during the grazing season, the **stocking rate** should be 2 to 4 acres per 1,000 pound horse if the pasture is well managed.

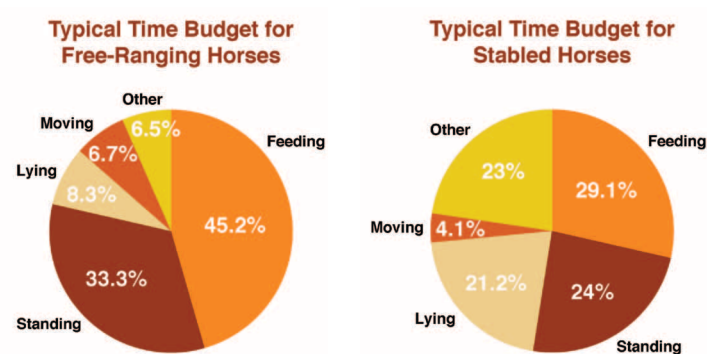
Definitions:

*Stereotypic behaviors:* Any repetitive behavior performed with no obviously discernible function.

*Weaving:* A horse that shifts weight between its front legs repeatedly in an exaggerated manner.

*Cribbing:* A horse that sets its teeth against an object, rocks backward with its body and sucks in air (the air is not actually swallowed).

*Stocking rate:* the number of livestock per unit area.



Compare the pie charts of time budgets for free-ranging horses and stabled weanlings. Note that the stabled weanlings spent more time lying down and had decreased time feeding and moving around. (Heleski and coworkers, 2002).

## HOUSING REQUIREMENTS

While the most natural setting for a horse is outside with shelter from harsh weather, horses that are shown or kept on small acreage may need to be stalled. Most experts agree that horses should have at least three to six hours of turnout time a day to prevent undesirable behaviors and promote healthy skeleton and respiratory health. The housing dimensions and materials used should accommodate a horse’s wide range of behaviors to promote a safe working environment for both horse and handler.

## STALLS

The height of the stall should be a minimum of 8 feet. A 10-foot by 10-foot stall should be the absolute minimum size, and 10-foot by 12-foot or 12-foot by 12-foot are preferred size. For stallions, draft horses and foaling stalls, a 12-foot by 14-foot or 12-foot by 16-foot stall is preferable. The larger stalls are easier to keep clean and provide more room for big horses to move around. Larger stalls may help alleviate some of the common undesirable behaviors like kicking, chewing and pawing.

## BARN ALLEYS

Barn alleys are like hallways in any house or building; they help navigate from one room (or stall) to another. A barn alley needs to be large enough to facilitate the safe movement of a 1,200-pound animal (and sometimes its offspring), a handler and equipment like tractors and spreaders. An alley needs to be wide enough to accommodate horse traffic at peak working times and tall enough to prevent a horse from hitting its head if it rears-up. Minimum width recommendations for horse traffic alone are 10- to 12-feet wide with a preferred width of 12- to 16-feet wide to comfortably accommodate horse traffic as well as farm vehicles and tractors. Alleys should be at least 8 feet high, but preferably higher (9 to 10 feet) to accommodate a horse. In alleys that need to facilitate a horse and rider, the minimum height should be 14 to 15 feet.

Ideally, barn alleys should be free of objects like tack boxes and saddle racks that can be a hazard to horse and human traffic. In addition, stalled horses should be fully enclosed (with bars or mesh for visibility) so that they cannot reach out and bite horses or people as they walk by. Finally, in alleys with high traffic, as well as different experience levels of handlers and horses, it is recommended that horses are not tied in the alley, either by cross ties or tied to the side wall. Always make sure that horses pass “left to left,” making sure the handlers are between the horses to allow them to swing a horse’s hindquarter away from the other horse/handler if it tries to kick.



This barn alley is wide enough to handle two-way traffic of horses. The alley is free from objects that could cause injury to a horse if they spooked. The stalled horses cannot reach out and bite horses in the alley.



This alley is kept clean and has good footing and lighting. A separate grooming area on the left keeps tied horses out of the traffic flow.

Horse Barn Material Chart

Material	Advantages	Disadvantages	Notes
Wood	<ul style="list-style-type: none"> <li>• Popular material</li> <li>• Good insulator</li> </ul>	<ul style="list-style-type: none"> <li>• Soft wood subject to chewing and breakage from kicking</li> </ul>	<ul style="list-style-type: none"> <li>• Hardwood will last longer than soft wood</li> <li>• All wood exposed to the ground should be treated</li> <li>• Top boards can be protected from chewing by covering with metal stripping</li> </ul>
Metal	<ul style="list-style-type: none"> <li>• Easy to install</li> <li>• Low maintenance</li> <li>• Chew resistant</li> </ul>	<ul style="list-style-type: none"> <li>• High initial material cost</li> <li>• Poor insulator</li> <li>• Horses can kick through metal</li> </ul>	<ul style="list-style-type: none"> <li>• Always line stalls with at least 4-foot wooden kick boards to decrease potential of serious kick injuries</li> </ul>
Cement Block or Masonry	<ul style="list-style-type: none"> <li>• Good insulation</li> <li>• Low maintenance</li> <li>• Chew and kick resistant</li> <li>• Easy to clean</li> </ul>	<ul style="list-style-type: none"> <li>• High material and building costs</li> <li>• Difficult to install waterers and feeders</li> <li>• Must plan on ventilation</li> <li>• Kicking can result in serious injuries</li> </ul>	<ul style="list-style-type: none"> <li>• May opt to line stalls with at least 4-foot kick boards to decrease injury risks</li> </ul>

## BARN MATERIAL

Most building materials are satisfactory for barn use as long as they are strong enough to stand up to the abuse of horses. Materials need to be able to withstand or deter kicking, pawing and chewing and hold up to manure and urine exposure. Climate and expense will certainly factor in to material choices, as well as upkeep and potential resale value. The above chart compares some common building materials for horse barns.

## CONCLUSION

Housing for horses can be as simple as a three-sided shelter and as elaborate as a multi-million-dollar barn. The type of shelter you choose will depend on a variety of factors:

- intended use of horses
- financial resources
- management style (intense or minimal)

If you are going to showcase elite stallions for high stud fees, you will be making a sizable investment in facilities to impress potential clients. In addition to building costs, a showcase facility requires high labor costs to maintain the buildings and grounds and care for the horses. However, if you simply want to ride your horse at home or on trails and would rather spend your leisure time riding instead of performing chores and maintaining the facility, then a fenced-in pasture with a small shelter may be ideal. No matter how simple or elaborate, the facility should be designed to optimize the horse's health and psychological well-being by promoting socialization among the horses and offering daily turnout for free exercise.

## References

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For more information read MSU Extension bulletin E3162, "Health Considerations When Housing Horses."

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