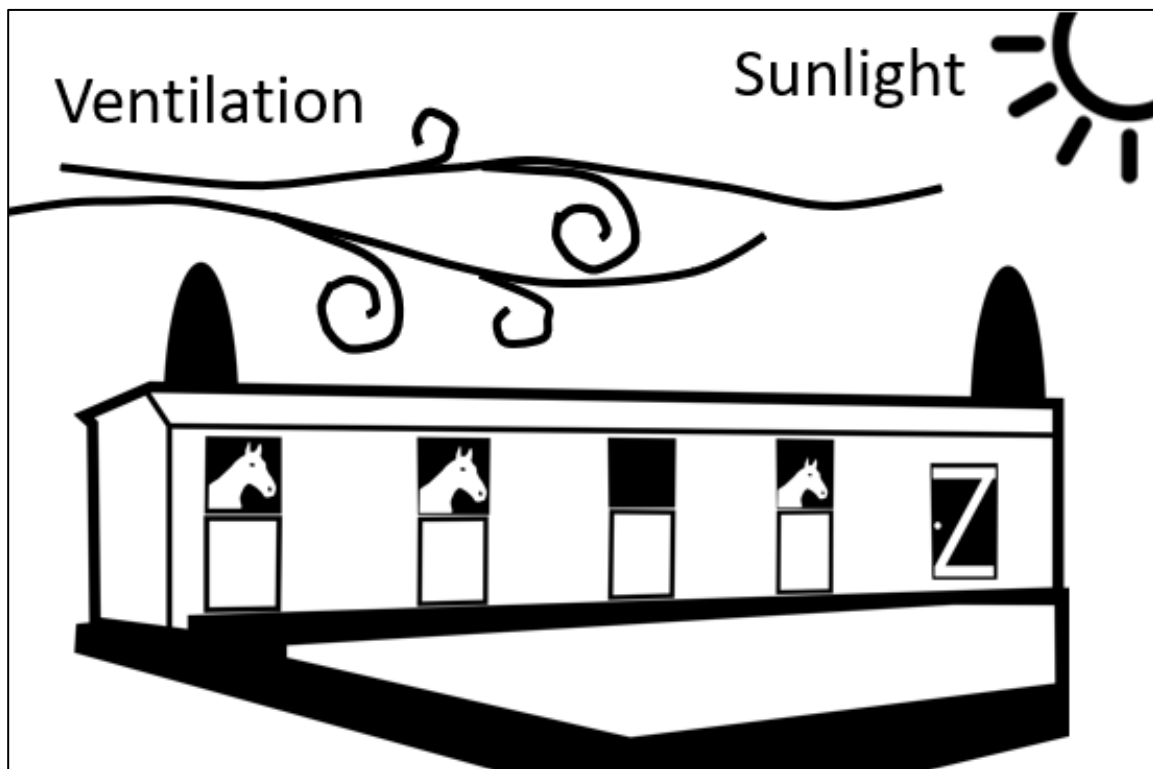


Urban Barn Location:

Natural Ventilation and Sunlight on Equine Health



Horses: Therapy, Activity, Safety and Research

Community Health and Safety Division

Public Health Behavior Solutions

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PublicHealthBehaviorSolutions.com



Urban Barn Location: Natural Ventilation and Sunlight on Equine Health

BACKGROUND & PURPOSE

This document has been written as a brief resource for representatives, local officials, and others who have little equestrian knowledge and experience, in the City of Glendale, Burbank, and Los Angeles. It's scope is to improve decision makers with a better understanding on the physical location, and the importance of proper ventilation and sunlight, for backyard urban barns. These urban rancho barns are closer together than those in rural areas, making it necessary to have these further away from the main home and other structures to ensure proper natural ventilation and maximum natural sunlight, for the health of the horse.

Barns in urban ranchos, such as those in Glendale Riverside Rancho, Burbank Rancho Equestrian District, and Los Angeles Atwater Equestrian District, are necessary to have these barns set back further away from any structures. There is sufficient evidence in equine research that suggests the importance of barns to take advantage of the natural ventilation and maximize natural interior light for the health of the horse (Creating a Healthy Horse Barn | Equimed - Horse Health Matters, n.d.).

VENTILATION

Ventilation inside a barn is vital for the health of the horse (*Importance of Barn Ventilation for Winter Horse Health | Equimed - Horse Health Matters*, n.d.). Natural fresh air, is mixed and separated into layers based on the temperature and humidity levels, known as “thermal buoyancy”, where hot air rises, creating natural ventilation (Wheeler, n.d). Horses naturally release moisture from sweat, urine, defecation, respiration, and bathing. Other sources of moisture can come from hay, grain, and bedding materials in the barn. Ammonia fumes can result from poorly cleaned stalls, but also within a barn that has poor ventilation. When stale air is trapped inside a barn, humidity increases, causing mold spores and bacteria particles in the air within the barn. A horse can develop respiratory illnesses (*Equine Respiratory System: How Horses Breathe - Asset Publisher*, n.d.; Sochycky, 2022). In order to allow natural ventilation is to ensure that the barn is also built further away from structures, promotes natural ventilation and sunlight to help reduce pathogens.

SUNLIGHT

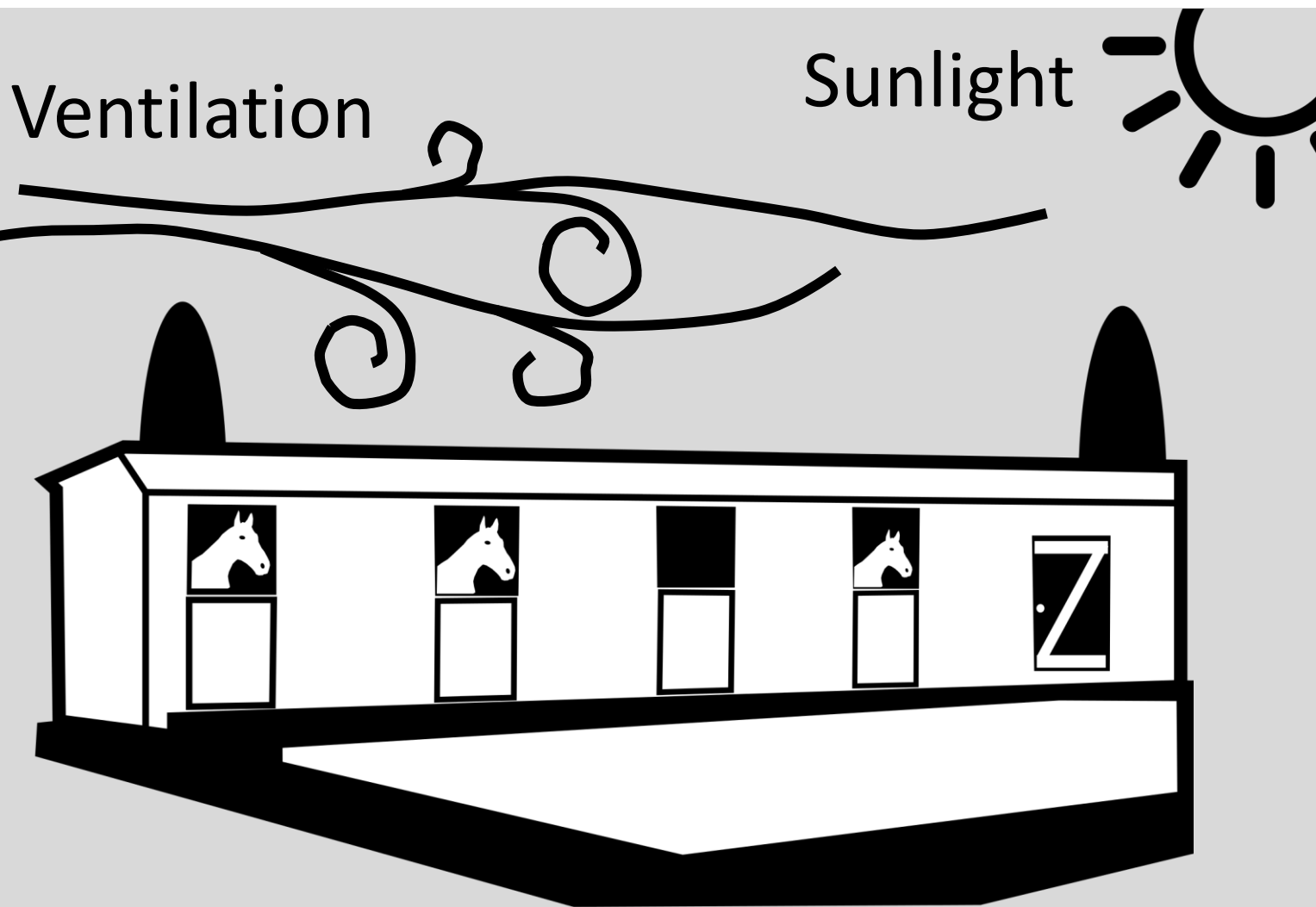
Compared to humans, horses need significantly larger amount of ultraviolet light each day to satisfy what their body needs to produce enough vitamin D for healthy movement of joints, bones, and muscles (Ross, 2018). Further, natural light maintains their circadian rhythm and maintains natural reproductive cycles. Evidence has also shown that natural sunlight helps to reduce mold, odor, and disease-producing bacteria, that result in pathogenetic effects to the horse. To allow for natural sunlight to reach inside an urban barn, it is vital for the barn to be placed further away from tall structures that can block natural sunlight into the barn.

The following diagrams further illustrate the evidence described above regarding the importance of how natural ventilation and sunlight, and barn location, contributes to equine (horse) health.



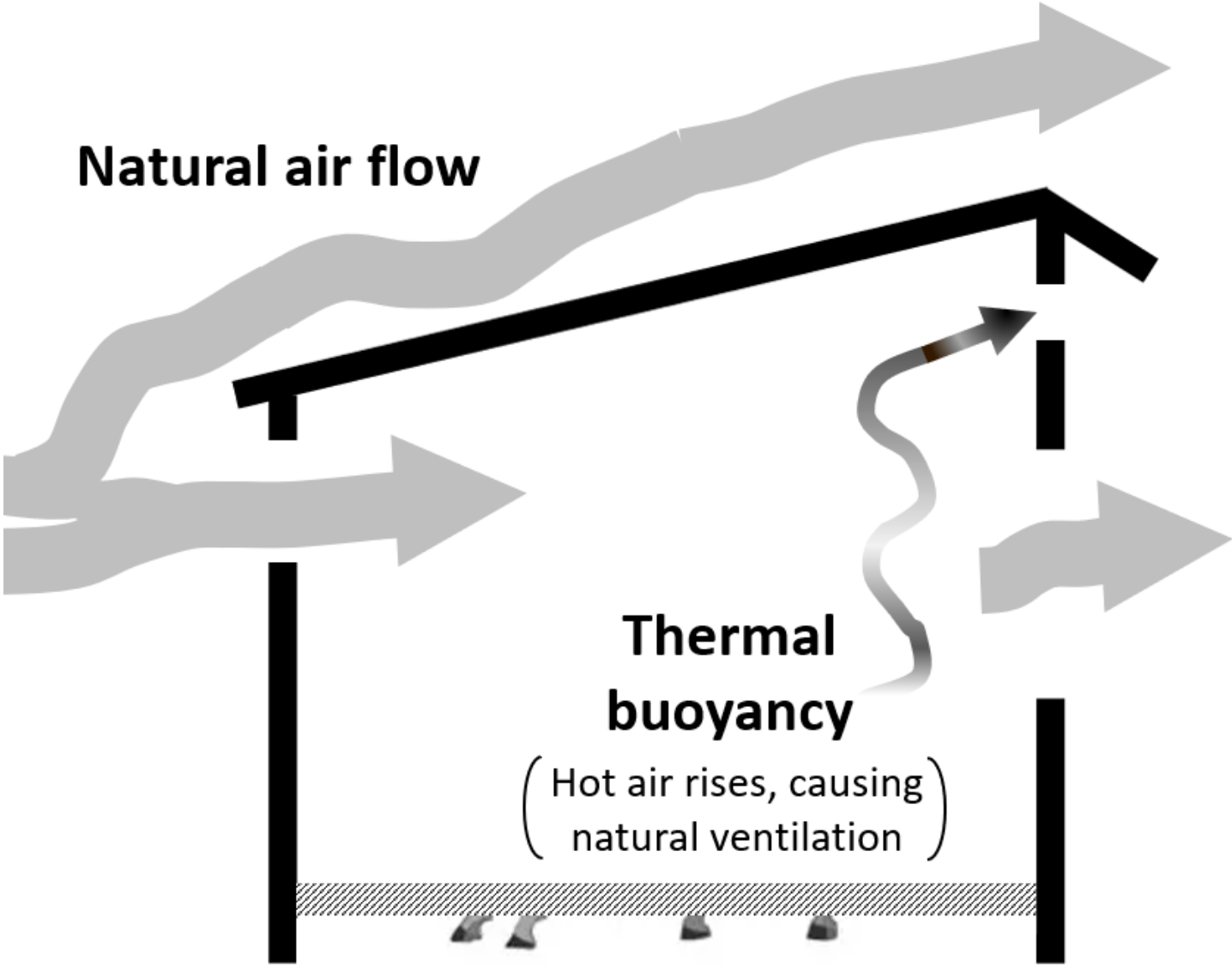
Sunlight and Ventilation

While barns vary slightly in the urban ranchos of the Glendale Riverside Rancho (including Burbank Rancho and Atwater Village Equestrian District), the following is a typical style barn that's accommodates 4 to 5 horses with a tack room. These have been built behind the property, further away from the home or other structures. This helps to maintain necessary sunlight and ventilation for horses.



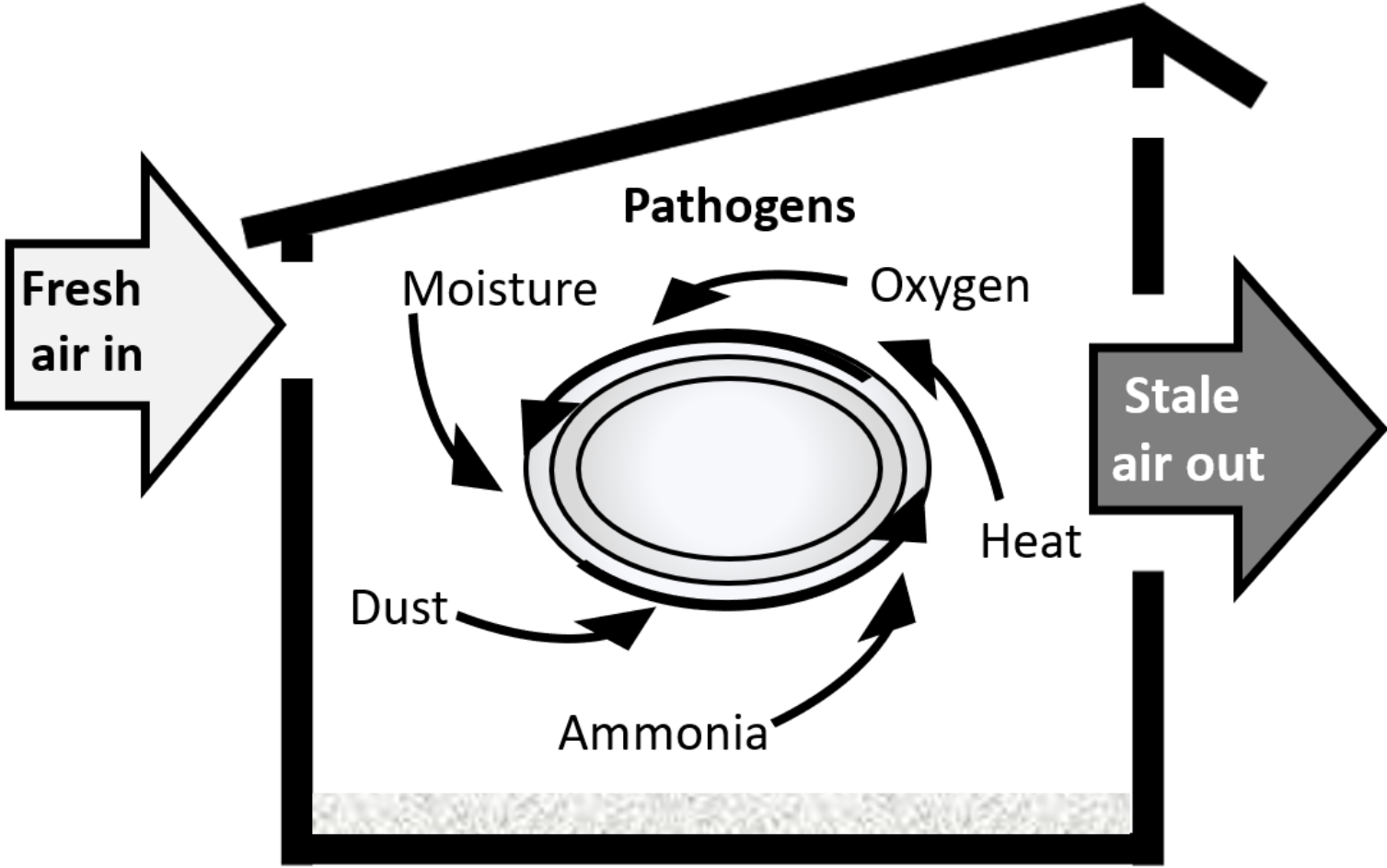
Why is natural air flow helpful

Barns are designed to promote natural air flow inside the barn. Both wind and thermal buoyancy (where hot air rises) are the natural force that promote ventilation.



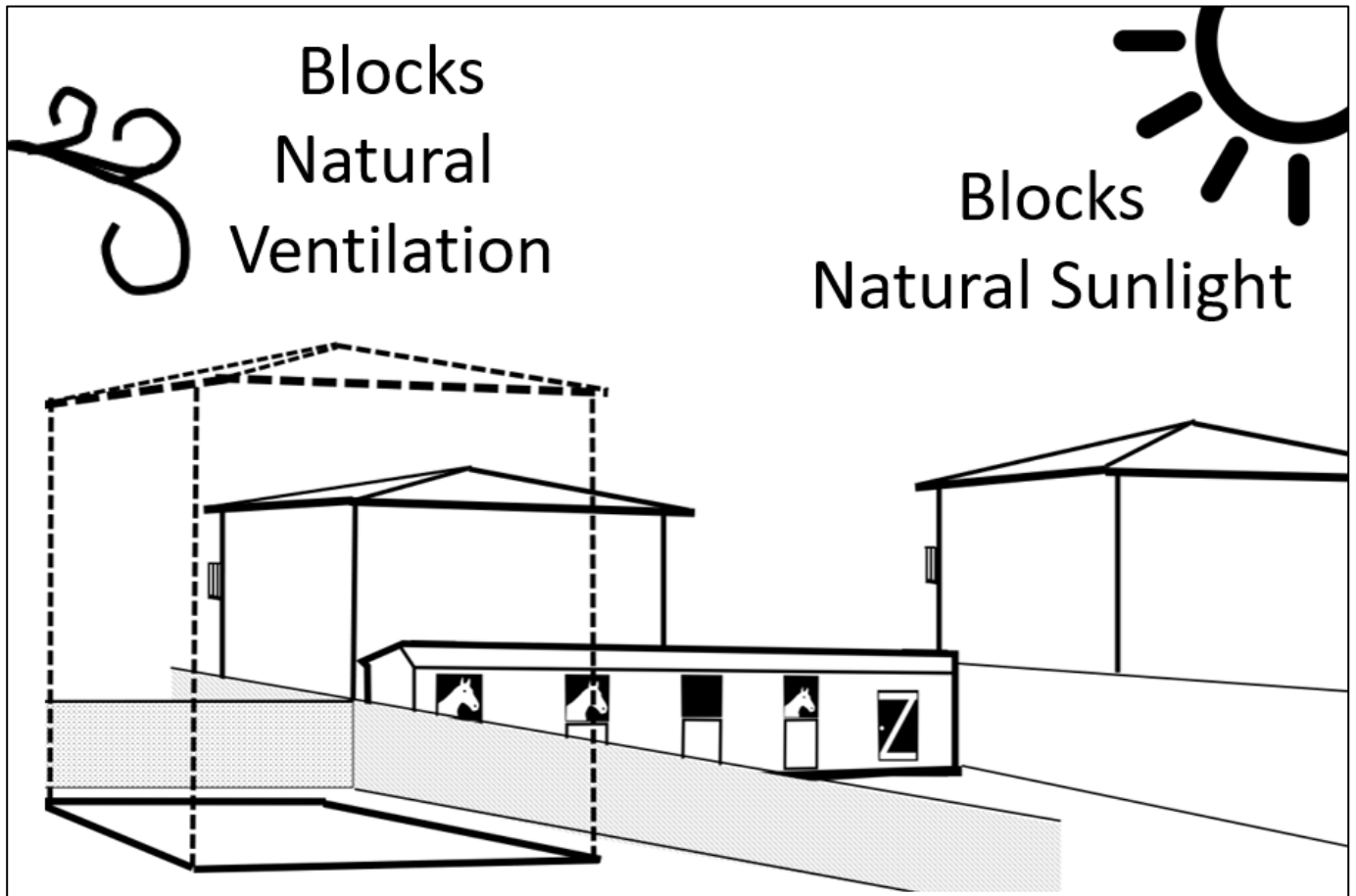
The importance of natural air exchange

When there is natural air flow. This natural ventilation allows for air exchange, where stale is replaced with fresh air to help reduce pathogenic effects.



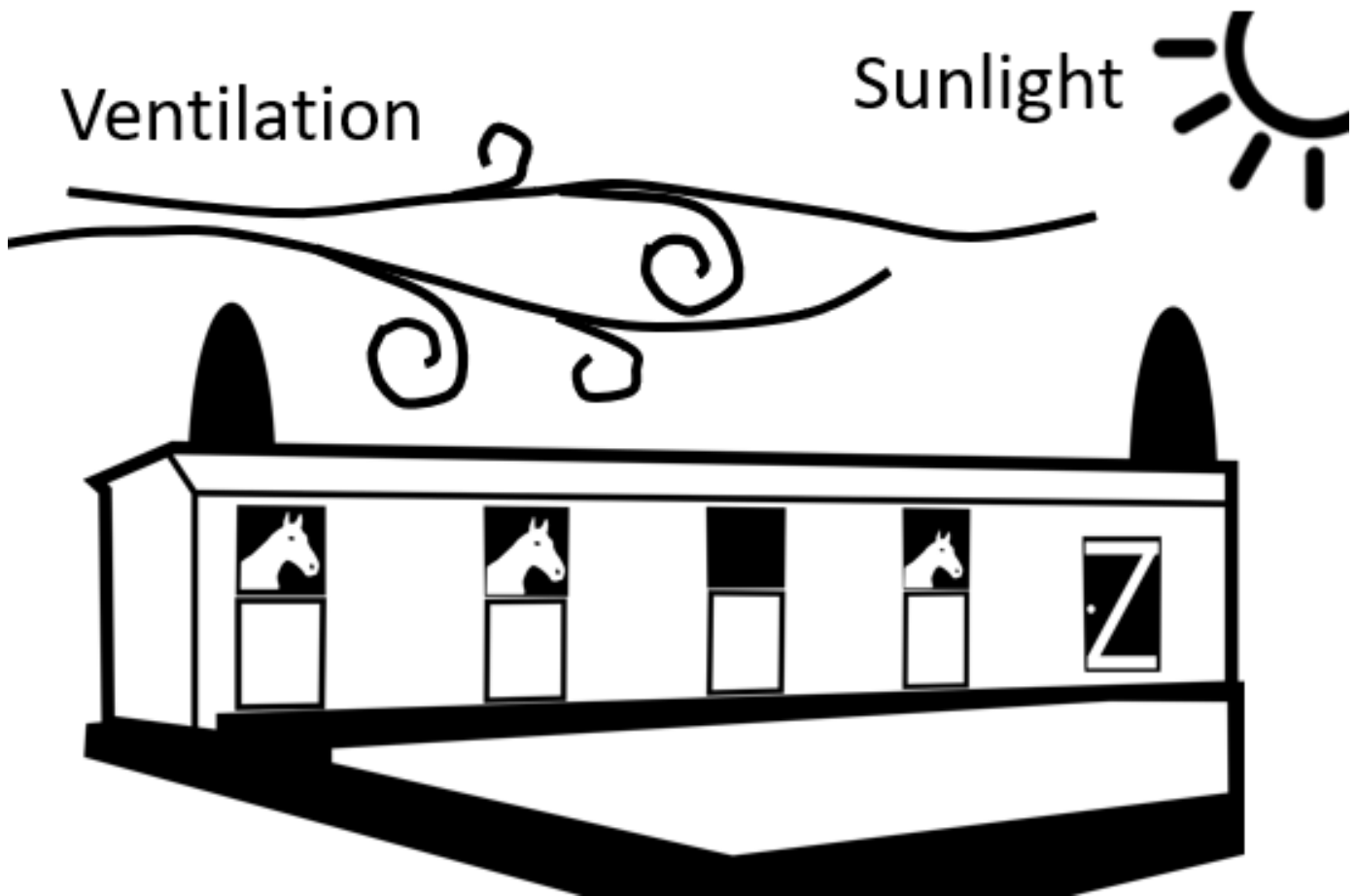
If a structure of building blocks a barn

When a structure, such as another home, tall guesthouse or accessory dwelling unit (ADU), is built adjacent to a barn, this blocks natural ventilation and sunlight. This increases pathogens in the barn having a negative impact on the health of the horse.



Natural ventilation and sunlight and barn location

In order to have natural air flow and sunlight, most of the urban barns in the Glendale Riverside Rancho (including neighboring Burbank Rancho and Atwater village) are places far back at the end of the property away from tall structures. This allows for natural air flow and sunlight.



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