

NEED TO KNOW



Things you need to know about meeting physical requirements of sheep.

Sheep requirements for light, air & ventilation

Sheep need little, if any, housing other than some shade from the sun when it is hot and protection if the weather is extreme. Shelter from extreme weather can be as simple as a row of trees or a **windbreak**. Sheep may also need overhead protection from rain and snow.

Sheep pens and barns can be used to provide shelter for sheep. However, they should be built in places where it is possible to avoid problems such as flooding. These shelters must also provide for fresh air, light and adequate room to move.

Ventilation is very important. Ventilation can be provided naturally, with openings for fresh air, or mechanically, with fans. Sheep must have a dry and draft-free area for lambing.

Sheep should be provided with clean, dry straw for bedding. Damp and soiled straw should be removed daily and replaced with fresh straw.



KNOW WHY ADEQUATE AIR AND VENTILATION ARE REQUIRED

Good ventilation is important for the health and productivity of sheep. Some producers keep their sheep outside year-round. Sheep kept outside benefit from better ventilation and more exercise.

Barns should not be heated or closed up. Good ventilation is an absolute must. Respiratory problems, including pneumonia and bronchitis, can result from poor ventilation. If ammonia can be smelled in the barn, the ventilation is probably not adequate.

The purpose of ventilation is to replace moist, warm air inside the barn with cool, dry air from outside. Ventilation is important for maintaining a healthy flock and critical for maintaining the health of lambs.



DO YOU KNOW

how to ensure adequate ventilation in housing facilities? If you think you need to know more, go to **Housing & fencing structures for sheep** in the inquiry topic, **Know livestock housing & equipment** at www.ctsanimals.ca/va2040/environment.html.

Ventilation can be accomplished either naturally or mechanically. However, usually naturally ventilated cold housing is preferable for sheep. It is better to over-ventilate than under-ventilate. Sheep must have a dry, draft-free area for lambing.

It is important to remove stale air with excess moisture and gases and replace it with fresh air to avoid respiratory problems. When the weather is hot it is important to remove animal heat to keep sheep comfortable. A good ventilation system will do these things.

Insulation helps improve ventilation. Insulation is used to reduce the flow of heat or cold in a barn. In cold weather a small amount of insulation under the roof steel can minimize condensation from occurring as moisture from warm moist air will condense on cold surfaces. Insulation is also important in warm weather to reduce the flow of heat into the barn and keep it cooler.

All ventilation systems require three basic components:

1. An **inlet system** to allow fresh air into a building.
2. An **exhaust system** to remove the stale air from the building
3. A **control system** to provide the correct amount of air entering and leaving the building.

Viruses and bacteria thrive in low-quality air, which can lead to respiratory and infectious diseases in lambs and adult animals. If housed in barns, air must be kept fresh and dry, especially at the level of the animals. A flock can produce very humid conditions in an enclosed barn.

During winter, it is essential to circulate enough fresh air to keep humidity down and protect lambs, while maintaining adequate warmth to prevent water lines from freezing.

Some information adapted from *Flock nutritional requirements*: Sheep 201 website: and "Nutrition" *Virtual Tool Box*: Canadian Sheep Federation. www.sheep101.injo/201/nutritionreq.html and www.cansheep.ca/User/Docs/VTBox/Housing%20Section%202.pdf



KNOW WHY ADEQUATE LIGHT IS REQUIRED

Light is important in housing, since animals need to see so they can behave normally – moving, feeding or resting. It is also important for the sheep owner to see properly to inspect, care for and manage sheep.

Where natural lighting is not adequate, artificial lighting should be used so there are no dark corners or excessive shadows. Shadows startle sheep and make moving sheep more difficult. Sheep will move more easily from a dark area to a light area. Light and dark periods should be at least six hours each in a 24 hour time period.

Natural light can be provided with translucent material in the roof or walls. If in the roof, an area equivalent to 8 to 10 percent of the floor area is recommended. If in the walls, an area 10 to 15 percent of the floor area is recommended. The orientation of the building to the sun will determine the location of translucent materials. Large openings for ventilation can also add to the natural lighting.

Reproduction can be affected by light. There is evidence that shows that changes in light intensity and time, whether naturally with changes in season or artificially through lighting, can affect reproductive cycles.

Sunlight can also provide warmth. This can warm animals when it is cold, but also contribute to heat stress in hot conditions. Direct sunlight can also have a positive impact on overall health.

What does the Code of Practice for the Care and Handling of Sheep say about ventilation, light and temperatures?

“ Air quality is very important for sheep welfare.

The quality of the air and environmental conditions inside the housing will vary depending on external temperature and humidity, ventilation, stocking rates (number of animals per cubic metre of air) and bedding management. Air circulation, dust levels, temperature, relative air humidity and gas concentrations must be kept within limits that promote the health and well-being of the sheep. A well-designed ventilation system that is well maintained and operated properly will help to optimize air quality in the housing. The ventilation system, whether natural or mechanical, should:

- Provide adequate fresh air at all times
- Distribute fresh air uniformly without causing drafts
- Exhaust the respired moisture
- Remove odours and gases.

In confinement operations, ventilation systems ensuring adequate airflow to avoid excessive heat build up are necessary to minimize the risk of heat stress. When ambient temperatures are high increased airflow at the animal level may assist convective cooling.

Shearing sheep prior to moving into housing can reduce the potential of thermal stress occurring and help in reducing the level of humidity.

Efforts to minimize additional moisture in the facility will help to avoid high humidity, which can be detrimental to sheep welfare. Bedding management can impact humidity levels. Bedding should be changed or topped with fresh bedding regularly to avoid moisture build up in sheep housing. In facilities with high moisture feeding systems, more bedding will be required to manage humidity levels in the housing. Changes to diets, such as going to a high moisture feed may also affect humidity levels and require changes to ventilation management.

Sheep are able to withstand low temperatures reasonably well if they have shelter from wind and precipitation, are in good health, and have ready access to sufficient appropriate feed.

Other than for some newborn lambs, properly designed and maintained sheep housing does not require supplemental heat for the welfare of the sheep.

Excessive ammonia inside buildings can pose a health threat to both sheep and animal handlers. Very high concentrations, e.g., 45 ppm, can affect growth and are aversive to sheep, but some detrimental effects can occur at 15 ppm of exposure in as little as 12 days. Effective ventilation avoids damaging ammonia levels. There are no guidelines for acceptable levels of ammonia in livestock buildings, but the Occupational Health and Safety guidelines cite an exposure level of 25 ppm for humans for an 8-hour workday and a short-term exposure level of 35 ppm (15). If ammonia is detectable by the human nose upon entry into the housing, it is generally considered to be at a level that requires action to be taken. 🌱🌱



DO YOU KNOW

enough about the effect of hot and cold weather on sheep health and well-being? If you think you need to know more, go to **About livestock & the environment** in the inquiry topic, **Know about environmental influences** at www.ctsanimals.ca/va2040/environment.html.

The following **requirements** are identified in the Code of Practice.

Indoor air quality and temperature must be maintained at levels to promote good health and welfare of sheep.

When ammonia concentrations at sheep level exceed 25 ppm, take immediate action.

Producers must consider prevailing winds when constructing shelter for sheep to ensure adequate airflow and protection from cold winds.

These **recommended practices** are also provided in the Code of Practice.

- a. Seek competent advice on the design, construction or modification of buildings.
- b. Consider local topography when siting buildings or altering accommodations.
- c. Take action if ammonia is detectable by people entering the building.
- d. Check for drafts at animal level and adjust ventilation to eliminate drafts at animal level.

Sheep must be provided with an appropriate period of rest from artificial lighting (e.g., 6 hours), but they must not be kept in permanent darkness. Light is also required to facilitate proper care of the animals by the stockperson, so that sheep kept in buildings can be thoroughly inspected at any time and the sheep can be handled appropriately during emergencies, shearing and during daily care routines. Throughout the hours of daylight, the level of indoor lighting, natural or artificial, should be such that all housed sheep can be seen clearly by the stockperson.

Appropriate lighting for handling areas is also important for the welfare of sheep. Sheep prefer moving from darker to lighter areas. Shadows can startle sheep and make moving them more difficult. Exterior lighting of facilities can help minimize predator problems, but care must be taken to avoid affecting the diurnal cycle of the sheep.



The following **requirements** are identified in the Code of Practice.

Sheep housed indoors must be exposed to a natural daylight cycle (using either artificial or natural light), except for breeding animals under a controlled light regime.

Lighting must be sufficient to allow appropriate care and inspection by stockpeople.

This **recommended practice** is also provided in the Code of Practice.

- a. Ensure six hours of darkness in a 24-hour period for housed sheep.

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The process for the development of updated Codes can be accessed through the National Farm Animal Care Council at www.nfacc.ca/codes-of-practice.