

Cost effective building design solutions

Many farms underestimate the contribution farm buildings have on animal health and how to get better animal performance out of existing farm sheds.

Three separate factors contribute towards imbalances within livestock buildings.

- Moisture
- Fresh air
- Air speed

Increased moisture and lack of ventilation allows for increases in bacteria and viruses that cause respiratory diseases and other diseases such as mastitis and E.coli. Moisture is generated by livestock and from rainfall therefore drainage within, between and outside of pens is essential. Good manure and straw management and adequate guttering and downpipes are key in helping to control moisture.

A roof of 400m² with an average rainfall of 200cm would equate to 800 cubic meters (800 tonnes) of clean water therefore maintaining guttering and downpipes is essential to control and manage dampness within buildings.

Having effective air inlets/outlets will ensure enough fresh air is entering buildings. 100% fresh air flow reduces airborne bacteria 10-20 times quicker than just 50% fresh air. Too little fresh air can also elevate air temperatures.

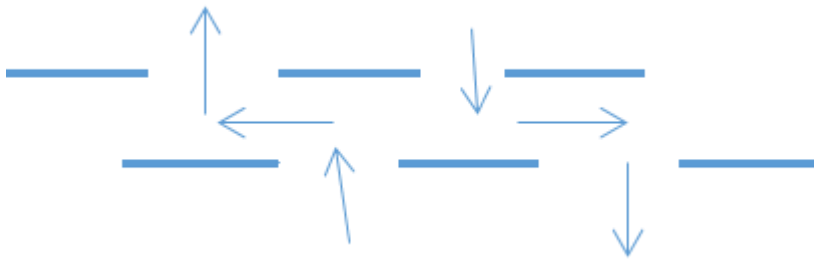
Air speed is another balancing factor within livestock buildings where too much is associated with excessive energy loss and too little associated with lack of fresh air, allowing moisture and viruses to build up. Greater use of perforated wall cladding to eliminate draughts at animal height could increase animal performance as energy losses would be controlled – especially important with young calves.

Jamie Robertson, livestock specialist, said “there is tremendous potential on our farms to increase health and performance by manipulating existing buildings to provide better management of moisture, better delivery of fresh air throughout a building, and controlling air speed. There is good guidance available to allow producers to evaluate what changes can be made. Many of the improvements are straight-forward, practical tasks, although all roof work should only be carried out by competent people”.

When building a new livestock facility you need to consider the following:

- High air flow speed costs money therefore all gates and walls should be solid up to or above animal height.
- Full height solid walls reduce the amount of air and ventilation, and they increase moisture within a building. Yorkshire boards are effective against weather but still ensure enough airflow.

Airflow through Yorkshire boarding



- There needs to be an outlet in the roof. A general rule is 0.1m² of hole per adult productive animal.

More details regarding designing buildings and can be found on our [Buildings and Animal Health factsheet](#)