

Housing requirements of pigs

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Building suitable housing for intensive pig farming represents the largest capital outlay in pig production. It is therefore crucial to plan buildings that are efficient and economical. Pigs in different growth stages have different environmental and climate requirements, and it is therefore essential to provide an environment that is optimal for each group or type of pig.

Temperature control and ventilation are the two main factors in intensive pig housing. Other factors that contribute to optimal production include space, length of feeding troughs, and comfort and facilities of pens.

Boar pen: Design and bedding

One boar is required for every 15 to 20 sows. The boar should be kept separately in a pen with a minimum floor area of 7m². However, if the pen is to be used for service purposes, a minimum floor area of 9,3m² is required, with the shortest side not shorter than 2,1m. This is necessary so the boar can easily turn around in his pen.

The floor in the boar pen should be non-slippery and equipped with bedding. If the pen is used for servicing, the floor should be free of slats and other obstructions. The floor is cast with a fall towards the sides to enable urine to drain towards a shallow manure channel on the side of the service passage or along the side of the building. The channel, in turn, drains to the main manure channel.

All non-solid gates should be designed with vertical spacers to prevent the boars from climbing up against the gates. The spacers are usually made of round iron pipes, with a 20mm diameter, spaced vertically, no further apart than 75mm. The height of the gate should correspond with the height of the surrounding wall, which is 1 400mm.

Bedding in the sleeping area of the boar pen will prevent the sides of the hooves, as well as false hooves, from chafing against the concrete when the boar gets up from a lying position. It will also prevent the development of

bedsores on the shoulders of heavy boars.

Boar pen: Feed and water troughs

The feed trough has to be placed in such a way that wood shavings on the floor are not eaten with the feed. Each boar requires a trough of between 460 and 600mm long, 150 to 200mm high and 500mm wide. The condition of the boar is important because he cannot be allowed to become too heavy for the sow.

A boar needs about ten to 15 litres of drinking water per day. High-quality drinking nipples (12mm in diameter) with a flow rate of at least 2ℓ/minute are commonly used. If the drinking nipple is placed at a 90° angle with the vertical, the height from the floor must be between 550 and 650mm. If it is placed at an angle of 45°, the required height is 650 to 750mm.

Because pigs are in the habit of defecating where they drink water, their

water must be placed in the dunging area. To prevent the feed from getting wet or soiled by urine or faeces, the feeding trough has to be placed as far away as possible from the dunging area and the drinking nipple.

Boar pen: Temperature control

The boar pen must be cool, well ventilated and free of draughts. If possible, the temperature in the pen should never go higher than 22°C for long periods. Boars that are exposed to temperatures of higher than 32°C may become infertile for up to six weeks thereafter. Sufficient roof insulation is essential for proper temperature control.

If there are problems keeping the boars cool due to high ambient temperatures, they may be sprinkled with water, or moistened with water in some other way. Pigs do not sweat, and cooling is brought about through evaporation.

Figure 1: Sow and boar house (design 1).

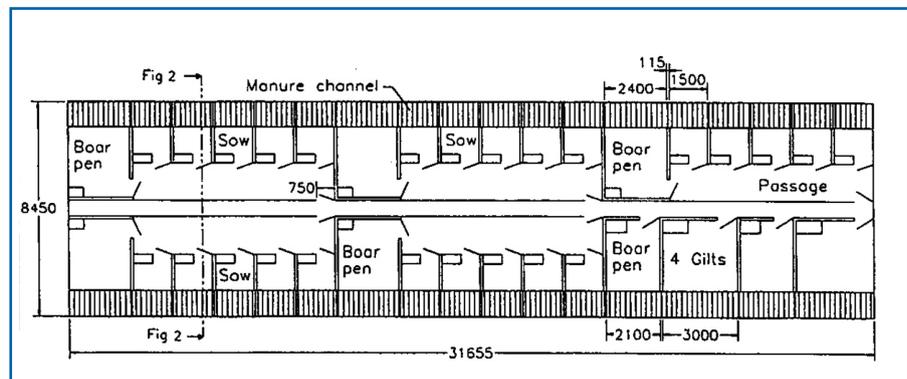


Figure 2: Cross-section of the sow and boar pens (design 1).

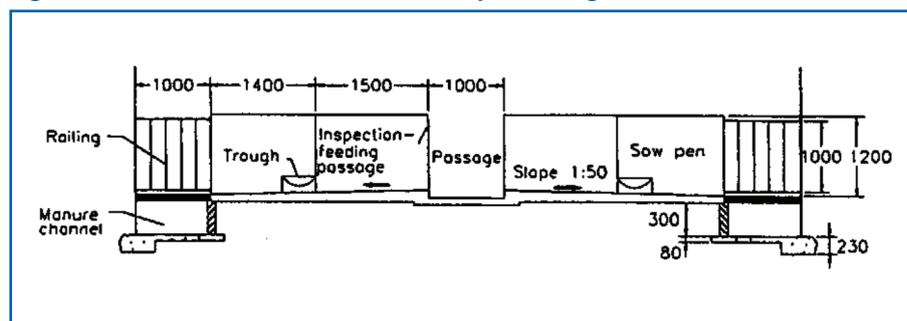


Figure 3: Sow and boar house (design 2).

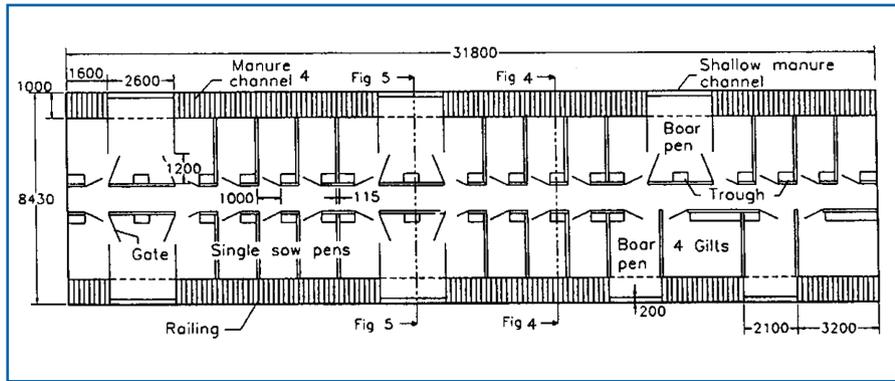


Figure 4: Cross-section of sow and boar pens (design 2).

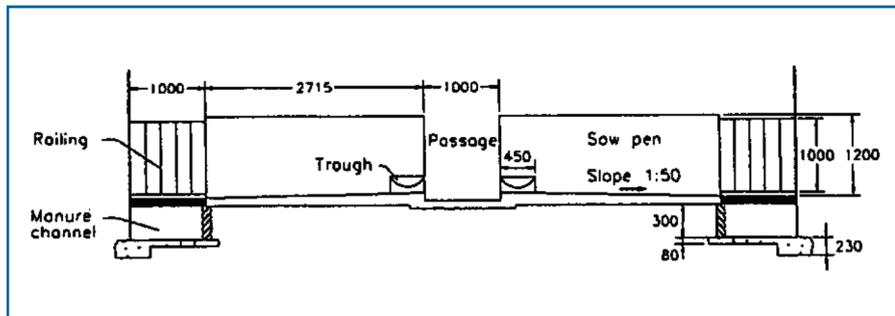
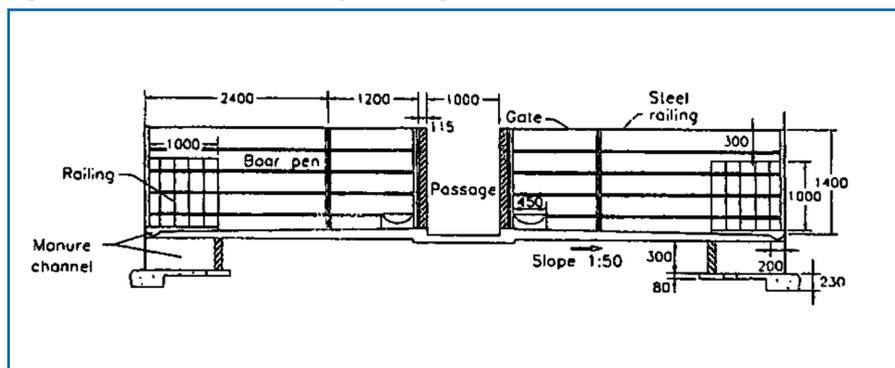


Figure 5: Cross-section of boar pen (design 2).



For this reason, sprinklers are preferable to moistening because moistening only cools the air, while sprinkling wets the pig and causes the skin to cool through evaporation.

Sow pen: Design and boar access

In an intensive pig production system provision is made for five single sow pens per boar, because the sow must stay there for five weeks and a sow/boar ratio of 1:20 must be maintained. It is important to bring the boar into contact with the sow as often as possible. The boar is therefore allowed to pass through the feeding passage, about 1,5m wide, in front of the sow pens (Figure 1).

To manage even more contact between the boar and sows, or in cases where there are no feeding passages, partitioning made of heavy-duty iron pipes 20mm in diameter, spaced 75mm vertically, is placed over the slatted floor area between the adjoining boar and sow pens (Figure 2). The reason for placing the partitioning over the slatted or dunging area is that pigs tend to defecate while communicating with pigs in adjoining pens.

Alternatively, the sow may be placed in a pen directly next to the boar right after she weaned her litter. The pens are divided by pipe partitioning. A direct connecting gate may be placed between

the pens (Figures 3, 4 and 5). The boar is allowed access to the sow twice daily by simply opening the gate. This avoids unnecessary moving of the sow from her place to the boar and back, and makes it easier to manage the boar's oestrus identification problems. This arrangement also has a calming effect, especially on boars.

As soon as the sow has been served and does not want to stay with the boar any longer, she is moved to an individual pen close to the boar pen. If it is confirmed after three weeks that conception has taken place, she is moved to a crate partition or to group housing where she remains until her twelfth week of pregnancy.

Sow pen: Feed and water

For individual feeding, the sows are placed in pens of about 1,8m² adjacent to the boar pen. The sows are kept in the same building as the boar and therefore the same temperature and ventilation requirements apply.

Slatted floors, with a width of one-third of the length of the sow pen, are frequently used. The slats keep the sows relatively dry and clean, and facilitate the management of the system significantly.

A drinking nipple with a 12mm diameter is placed 550 to 650mm high at an angle of 90°, or 650 to 750mm high at an angle of 45° above the slatted floor. The estimated water requirements of a non-pregnant sow are five litres per day. The feeding trough measurements are the same as for boars.

The sow and boar stable must make provision for pens adjacent to the boar pens where gilts can be placed in groups of four. The boars that are placed next to the gilts should preferably be older boars that are more relaxed and have more experience. Hand servicing should be supervised and requires a lot of patience because it may take a while. **SF**

The complete manual on intensive and extensive pig housing is available from the ARC-Natural Resources and Engineering, Agricultural Engineering campus. To order the manual, send an email to Elmarie Stoltz at stoltze@arc.agric.za. For technical enquiries, email Francois Swanepoel at swanepoelf@arc.agric.za.