

New insulated concept stable competes well with the un-insulated ones

A new building system, made of high insulated, light sandwich modules of great validity, ensues high quality for a fair price.

By Anne Olsen

The Steno System - a new building concept for pig stables are recently developed. The system is particularly suited for export to farmers, who want a cheap and reliable system based on west European know-how. The Steno System is developed for slaughter pigs and weaned piglets, however – with the right technical drawing - the system also provides possibilities for housing of sows.

The very first stable were build last summer at Hans Christian Clemmensens farm, Børkop, Denmark, and have housed slaughter pigs since August 2004. The insulated stable is build of modules and provided with under-floor heating.

The first group of slaughter pigs left the stable for slaughter at New Year 2004. And to the contend of Hans Christian Clemmensen and the stables designer Søren Steno, they ascertained that the production results were satisfying. Hereafter, they were ready to show the stable for Pig International.

The building concept includes indoor equipment such as partition walls, liquid feed facilities, and common under-pressure ventilation. However, still the concept gives cheap stables, which can compete with the cheapest stables in Denmark.

The Sandwich elements are provided with tongue and groove, which makes the assembling easy, save and quick. As an example, the roof at the 18.000 sqm large building assembled during only two days. Mr. Steno informs that the earth-work, founding, and assembling of slats normally lasts eight weeks. Assembling of the building and inside equipment also lasts about eight weeks.

The first in Europe

The new building concept for pig stables is supposing the first of its kind in Europe.

Søren Steno informs that he got the idea from the way of building insulated barns for poultry.

However, the idea to the construction of walls, roof and ceiling are inspired from the way of building cold-storage plants.

The walls are a sandwich-construction of steel plates insulated with 80 mm Polyurethane Foam, which have an insulating capacity equal to 150 mm Rock Wool.

The ceilings top point is 6,5 m above floor level gives a large air volume inside the stable, which ensues pigs and men a lot of fresh air.

But why chose to build an insulated building at times where it is inn to build cheap, un-insulated building. And slaughter pigs do not need high temperatures to growth?

Søren Steno answers prompt.

- I have many years of experience in the pig business. However, I have not yet seen an un-insulated stable with a good feed efficient. And I think the reason is obvious – as cold increases the feed intake. Therefore, I saw a high demand for an insulated stable, which can compete with the un-insulated ones on building price and production economics without reducing the building quality.

More than 30 years experience

Behind the development of the new concept lies more than 30 years of Danish know-how within the business.

Søren Steno began his work in the pig business in 1972, and for may years he was director for Big Dutchman world-wide. In 1981 he received a reward from Danish Pig Producers Union for the development of computer controlled liquid feeding. Moreover, for many years Søren Steno worked together with Aage Jakobsen, who developed the Protekta stables, which was responsible for the large development in Danish pig production during the 60ties and 70ties.

- The unique thought behind Aage Jakobsens concept stables was that the stables should be build as cheap as possible, which was only possible by the use of modules. And the Protekta stables became a huge success in the large scale as well as for the single farmer, buying such stables, says Søren Steno.

- For the Protekta stables there was a fixed price per module including all equipment, ventilation and feeding system. Moreover, we knew exactly how many single parts of different kinds that belonged to each module. Søren Steno reports that – 30 years later - these thoughts behind the Protekta system is also used in the in the modern Steno System.

Building contract or build-self

Steno System offers to build the stable as total enterprise, which Søren Steno claims is the optimal solution for every pig farmer. According to Søren Steno, a pig farmer gets the best economy when concentrating about the pig production and leaves the building to the building experts

However, it is possible for pig farmers to build the stable them selves if they wish too. In such cases the farmer buys x no of modules, which will be delivered by truck or container on-site. A detailed technical drawing follows the building materials, and a supervisor will follow the building process during the building period.

Søren Steno considers that the last mentioned solution is particularly suitable for export.

It is his opinion, that the stable will be an obvious choice for vest European farmers who settle down in eastern Europe and want to maintain a production based on west European know-how. Farmers who buy the Steno System will get at reliable production system based on well known technology.

The detailed technical drawings combined with a supervisors advice ensures that the assembling of the stable can be done by local workers without former experience in the building business.

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Contact ad paid off

As one of the many projects in Søren Stenos private consultant business, Søren Steno began to design the Steno System in year 2000. He has been leading many building projects during the years, as well as in the poultry as in the pig business. And with his own words – he loves building projects.

When the Steno System was designed, Søren Steno needed to find a pig farmer, who would like to build the prototype.

- Therefore, during summer 2003, I insert a “contact ad” in a Danish Magazine for pig production, chuckle Søren Steno.

10 farmers applied and Søren Steno chose Hans Christian Clemmensen, who had a suitable building site. Further more Mr. Clemmensen was very motivated and active in the work with the finishing the project details, which lasted $\frac{3}{4}$ year.

The building of first stable began May 2004 by use of the building contractor NJ Totalbyg A/S, Haslev, Denmark, which is own by the director Niels Jeppesen, who is former building leader for the large and honourable building contractor Gråkjær Staldbyg.

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Facts about the first build Steno System

Dimensions:

- 1.724 sqm including feed barn. The production unit is 1.328 sqm.
- Length: 81,6 m.
- wide: 21,30 m.
- Length from floor to the top of the roof: 6½ m.
- 17 modules, each with a length of 17,80 m.
- Inside length form floor to the lowest part of the ceiling: 2,40 m.

Contains:

- 80 pens plus buffer section and feed barn.
- The production unit are separated in 4 units with room for 300 pigs in each unit.
- Total no of pigs: 1.200-1.400 (0,76 / 0,64 sqm per pig).
- Buffer section also works as room for delivery to slaughter and contains feeding and water facilities, and space for about 80 slaughter pigs.

- Feed barn contains mixing facilities, grain ditch and 2 plane corn storages with drying conduits.

Flooring:

- Insulated concrete floor with floor heating by use of Heat exchange between the 4 sections.
- 2/3 concrete floor and 1/3 slats.

Roof and ceiling:

- Sandwich-construction: Coated, galvanized steel and 80 mm Polyurethane Foam.

Liquid feeding:

- One single pipeline for the whole stable, which minimizes the residual feed for each feeding.
- Troughs are made from rustles steel: 4,80 m each.
- Liquid feeding pen wall (e.g. INN-O-WALL® from Egebjerg), rustles stele or plastic.
- Feeding 4 times a day.

Water supply:

- One rustles drinking bowl pr pen.

Pen equipment:

- Rustles steel from floor and 1,10 m up.
- Exterior wall covering: Plastic or rustles steel.

Ventilation:

- Common computerized sub-pressure ventilation.
- Ventilation prepared for air cleaning, which is under development.

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The concept

- Module building.
- Light construction.
- Highly insulated.
- Maintenance-free.
- Short building process and a fair price.

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Each module

Measures: 4,80 x 21,30 m

Capacity pr module: 120 slaughter pigs or 208 weaned pigs.

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