

Fitness for Purpose in the broadest sense

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- *Must be able to house two laying chickens at a time*

My scale model showed me that my original design was out of proportion and my client told me it was unnecessarily big for the intended purpose – he also said we needed 2-3 small cubicles max.

I have come up with a design that has two nests – I found out on the internet that you need one nest per 2-4 chickens and we usually have about 6 chickens so that should be the right number of nests for us.

Each cubicle is 500mm wide by 500 high at the back (researching the size of existing nests and recommended dimensions made me conclude that this would make it nice and roomy for the chickens).

A 200mm wall at the front will stop hay from falling out (I tried to simulate this action when I made my model) and make it easier for the chickens to get in and out.

There will be a 125mm deep by 300mm wide gap for them to enter. My internet research enabled me to get to these dimensions

Originally we wanted to be able to lift it in and out of the house but we have decided that is not a priority- therefore I wasn't too worried about the weight.

- *Must be robust*

The old coop is made of wood and is worn out and because it can flex, it could break and collapse.

The walls of my new design will be wrapped round a 20x20mm and 3mm thick steel frame – this will give extra strength and my trials showed that when metal is welded together it is a lot easier than conventional wooden methods. It will need to be sprayed to stop it rusting. I will use 17mm plywood and finger joints which I have found out from my trials will be a good permanent method.

- *Safe*

The roost will be 300 mm off the ground to protect the chickens from pests and not be too high for the chickens to get in and out.

The wood will need to be non-contaminated – ie no dangerous chemicals from treatment – but needs to be treated otherwise it will deteriorate too quickly

Edges will need to be smooth

(all from what I found out on the internet)

- *Steady*

The existing roost had some good points eg the 3 points of support at the front and the back.

The roost will have 6 support legs - this number of legs seemed to do the trick when I made my model – the weight is evenly distributed and it will be supported in the middle so won't bend.

- *Have a bar system for the chickens to poo and also to sleep on*

There are three bars for perching and these will be evenly spaced out for comfort.

The first will be 100mm from the front and the third will be 50mm from the back.

The main complication with designing the perch was to keep it accessible and still have the strength and stability. The final idea came from our existing perch and its support was set up very similar.

- *The roost must be able to be cleaned easily, to save time and remove filth*

The base under the cubicles will drop by hinges so hay can be washed out effortlessly. I had to think about

Functional Modelling

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The legs probably need to be taller (in proportion to the floor of the nest) to give more room for the hay to fall out the bottom.

My mock up of the base dropping didn't work too well with the foam card. It didn't have enough give in it so it didn't want to stay down. But it has given me enough of an idea to think it will work well.

My stakeholder said that 4 boxes are not necessary - two is enough.

I checked the space that the chickens currently take up in the old nests and 450mm wide will be plenty – chickens like their nests to be snug.

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Scale Model: Existing Design

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As we can see in the photo the wooden roost is fairly beat up. The wood has seen to wear and the legs are on a lean. Even though it has been attached by a sheep that had gotten in, it has to be prepared for the unexpected.

Properties of the existing model

- Strong structure as it is supported by a wall.
- In proportion with the chickens, just like one big mattress
- Comfortable – chickens are all used to it, then could rest be subject to change, have to keep it home and similar.
- home build and rough attributes to it.

From looking at the existing model, I can tell that wood is a good material and it is cheap and easy to get and manipulate but overtime it wears at the joint's and

