

AN OPEN FRONT BROODER HOUSE.

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After one year's general use of the 8-foot hover over the oil-burning brooder stoves, the very favorable reports received have warranted the designing of a building especially adapted for this equipment.

Because of the wire front occupying one entire side of the building, it is necessary to roost all the pullets on one set of dropping boards, along the rear wall. Assuming that the capacity of the brooder is 1,200 chicks the probable 500 pullets will require 9 roosts 40 feet long, six inches apart to accommodate them while the building is used as a pullet developing house after the fifth week. This requirement needs a dropping board 5 feet 4 inches wide, which is made by cutting a 16-foot board in three lengths. With the 8-foot hover in position and the adjustable dropping board let down on the inner edge of the forced roost sections, 14 feet of the total width of the brooder room are pre-empted. It is necessary that the caretaker pass back and forth through the brooder and at least two feet of space is necessary to pass the circle of sleeping chicks inside of and around the outer edge of the hover. Hence 16 feet is the minimum width which it seems practicable to use with this equipment.

There is no doubt but that a building 18 feet wide or even 20 feet wide has advantages over one 16 feet wide. However, the cost of the wider building which requires heavier and stiffer rafters is considerably greater, consequently we are suggesting the 16 by 40 building as the most economical brooder to build and operate.

The floor can be any one of four types:

1. Two course concrete with very smooth top finish.
2. Board floor covered with 1½ inches of concrete very smooth top finish.
3. Board floor of matched flooring.
4. Earth floor with rat-proof concrete wall.

The concrete floor on the ground is our first choice and illustrations show a concrete floor with a 3-inch base and a half-inch top. If the ground is quite solid and there is no danger of a fill settling and cracking the floor, a two-inch base with a quarter-inch top is all that is needed. The advantage of the solid concrete floor over board floor surfaced with concrete is less cost and a much easier task in getting the baby chicks out on the ground and back again, because the solid concrete floor will be nearer the level of the ground outside. The great merit of the cement floor is that it is fire-proof. Many oil-heated brooder houses have been destroyed by the oil-soaked floor or the oil-soaked ground underneath catching fire. The cement floor is also much easier to clean and has no cracks where mites may hatch.

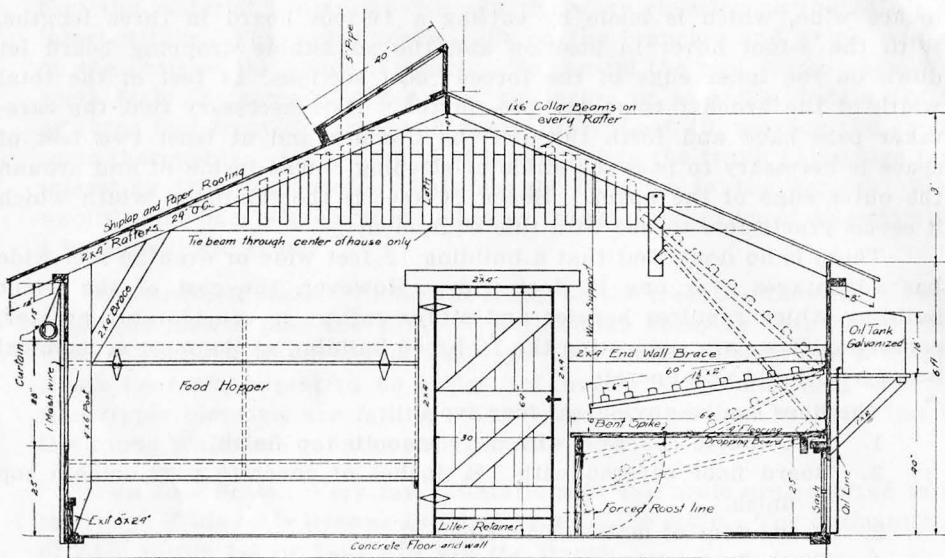
The cement floor on top of boards is to be recommended, when the ground is too uneven or where a cut and fill would have to be made. A concrete floor to be dry should always be built at least four inches higher than the surrounding ground and adequate drainage supplied to carry off the surface water.

Any type of wooden floors should be built at least 16 inches above the ground to prevent rats making their homes underneath the sills. All caretakers agree that it is very hard on the very young chicks when compelled to go up and down this, to them, enormous height even when supplied with a very gradual approach.

The board floor can be built, at the present comparative prices of lumber and cement, at a considerably less cost than either the solid concrete or cement surfaced floor. If the wooden floor is to be covered with concrete the stringers and joists must be strong enough to carry the weight.

The earth floor, even with the rat-proof walls, is the cheapest of the four types, and gives surprisingly good results for the first year of use, but the ground becomes so impregnated with droppings from the developing pullets that the new babies the second year have a very unsanitary place in which to begin their always serious battle against disease.

A new cement floor can not be used for chicks until it has dried out, and it will not dry out until warm weather. So, if a cement floor is laid



CROSS SECTION

Showing all three adjustments of dropping boards and roosts.

in the winter or spring, it must be covered with a temporary layer of boards or roofing paper.

There is always the dust nuisance in the earth floor, which makes it advisable to cover the entire surface with a layer of clean sand. The feed room, with its cheap galvanized iron sink and faucet, for washing the milk and water dishes, is a great labor saver, and when once installed is never regretted. It may be placed between two brooders, serving both of them equally. The one drawback to the twin-brooder houses is the curtailment of the size of the brooder yards.

The brooder houses should always have their exit openings on either the south or west side of the buildings, because the north and east are too cold, as neither gets the reflected heat of the afternoon sun.

The walls should be built without studding with the boards running up and down to eliminate the mite harbors always contributed by the unsightly 2x4 studding.

Warmth is not essential when the hover brooder is used as there is always room and sufficient warmth under the 8-foot canopy, until chicks are

taught to roost, hence there is no need of the expensive double wall construction used with the "two-room" brooding system.

The front wall has a two-foot opening the entire length, covered with one-inch mesh wire. The outside feeding trough can not be used with young chicks, so the windshield is raised to 30 inches above the floor instead of 16 as in the laying house. The 4 x 6 posts are advised because it is found that the diagonal braces, used in lieu of the iron stay rods or long collar beams, will bend outward the ordinary 2-inch risers.

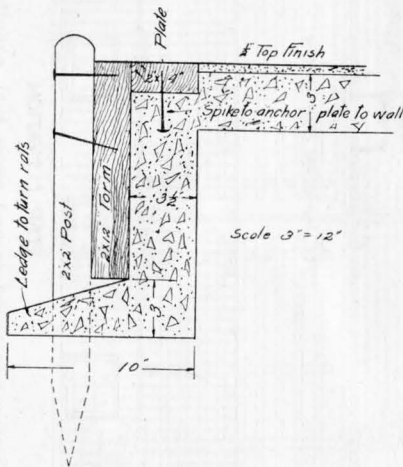
The roof can be either shingles or roofing paper. Shingles permit of some circulation of air through them and are of greater durability. Roof ventilators are quite necessary to supply adequate fresh air, especially when the brooder is used for developing pullets. At this time the rear windows are also removed.

The muslin curtain is generally down at night but should be raised as often as possible during the day, to properly harden the chicks. One width of muslin with the same continuous built up roller as in the laying house is used. The lift device is the same, but the light and comparatively short curtain does not require the windlass as shown in the illustration.

Chicks can be hardened in this type of brooder almost as well as outdoors, especially if a liberal supply of fresh sods are placed on the floor.

Method of Teaching Chicks to Roost. When chicks have become 31 days old they have usually acquired sufficient size and firmness of bone and cartilage to start them on the forced roost.

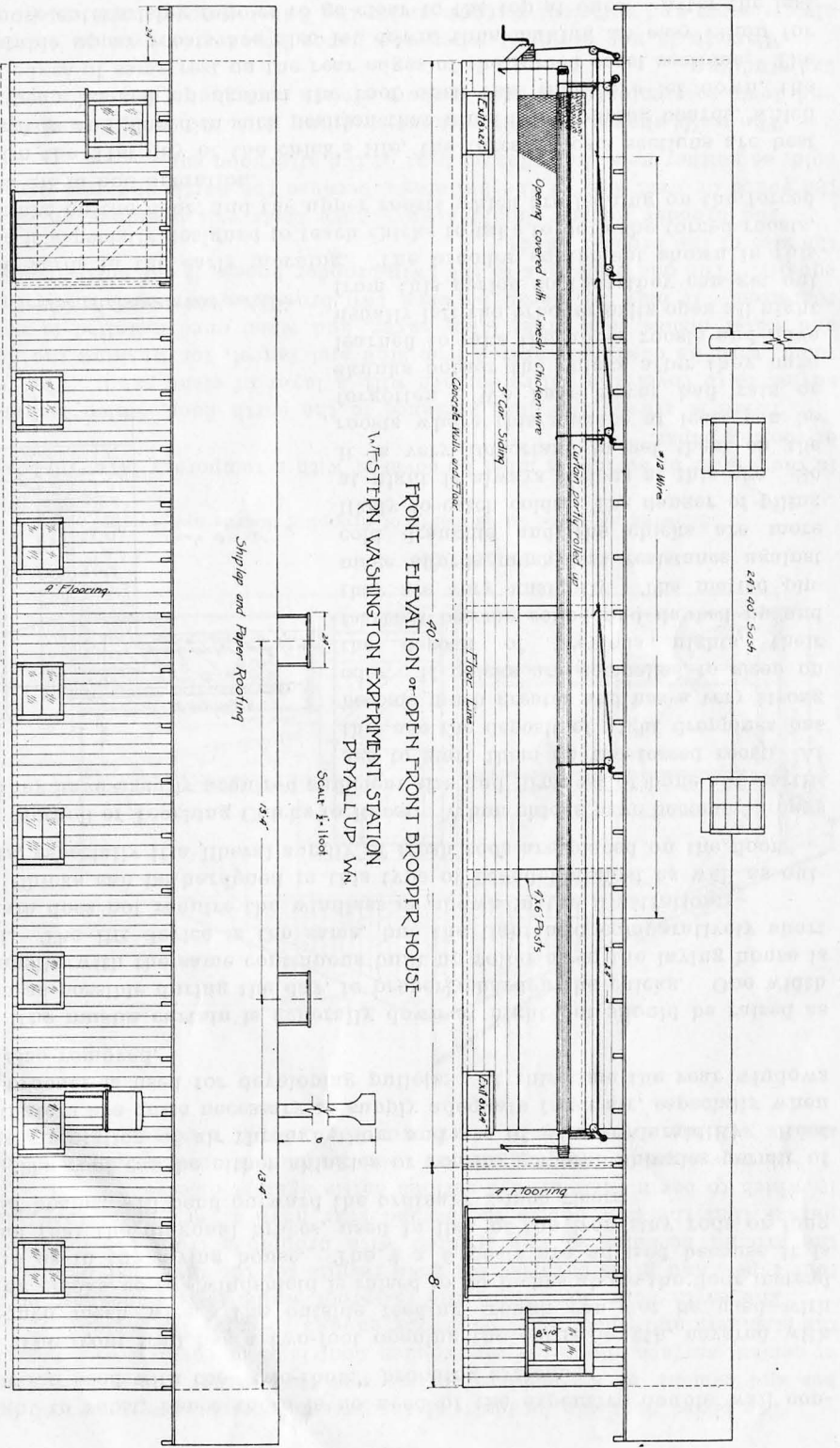
At this age the deposit of night droppings has become much greater and has a very strong odor. If chicks are compelled to sleep on the deposit of previous nights, their feathers become soiled and daubed up and they are very unsightly. The matted plumage affords much less resistance against cold draughts and the chicks are more likely to catch colds. The danger of piling at night is always serious at this age. So it is very important to get them on the roosts where this menace at least can be forgotten. We have never had rats or skunks bother the chicks after they have learned to take the upper roosts and have usually left the brooder exits open all night from this period so that they can get out



Cross Section of Concrete Wall and Form

in the yards in the early morning. The brooder equipment shown in this article is especially designed to teach chicks to take to both the forced roosts, which are on the floor, and the upper roosts which are leaning on the forced roosts, all in one operation.

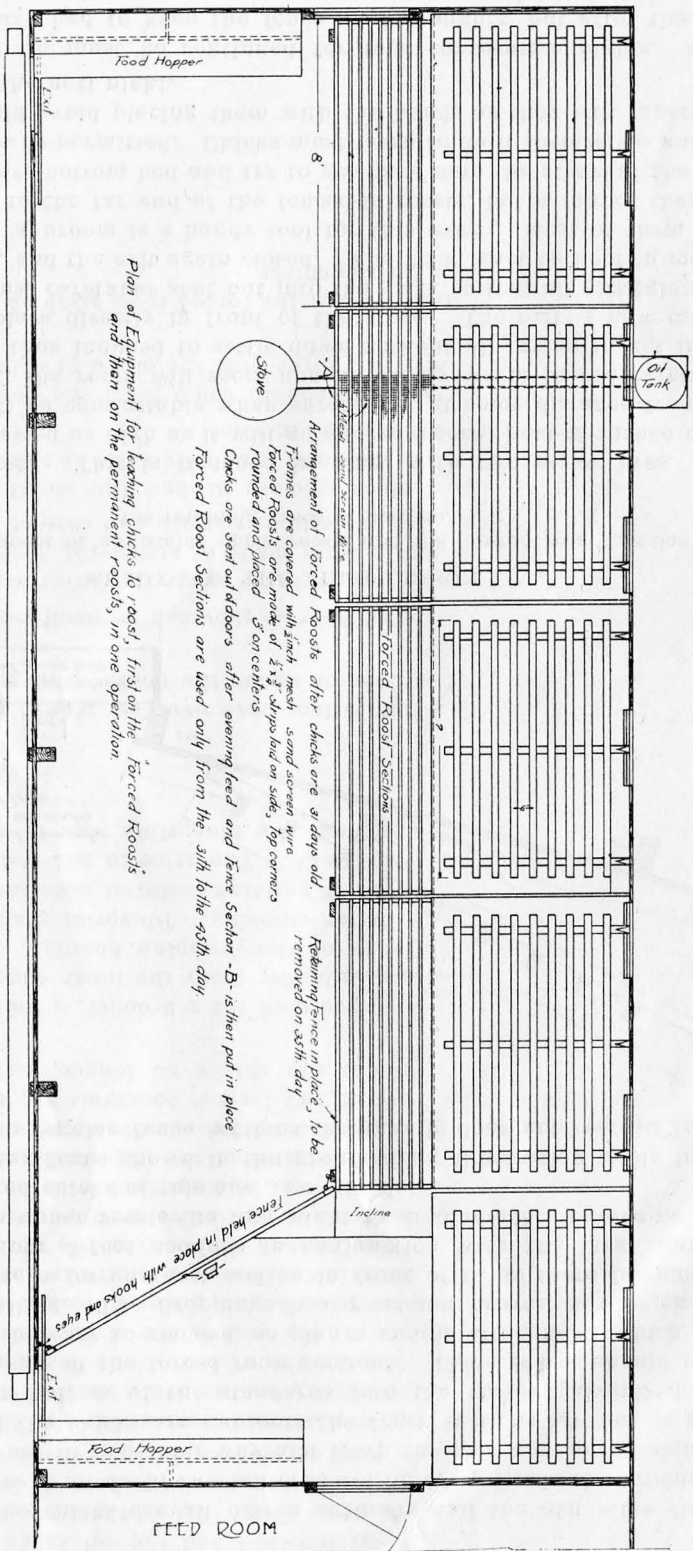
On the 31st day of the chick's life, the forced roosts sections are best brought in and placed in such position that when the dropping boards, which have been hooked up against the roof until this time, are let down, the front edges of same rest on the rear edges of the forced roost sections. The adjustable upper roosts are also let down, thus making an easy climb for the more enterprising fellows to go clear to the top at once. After the last



FRONT ELEVATION or OPEN FRONT BROODER HOUSE
 40'
 1-1/2-STEP WASHINGTON EXPERIMENT STATION
 PUYALLUP WA

REAR ELEVATION

The feed house may be built between two brooders and serve each equally. This type of brooder costs only half as much to build as the two-room double-wall type and is giving equal or better results.

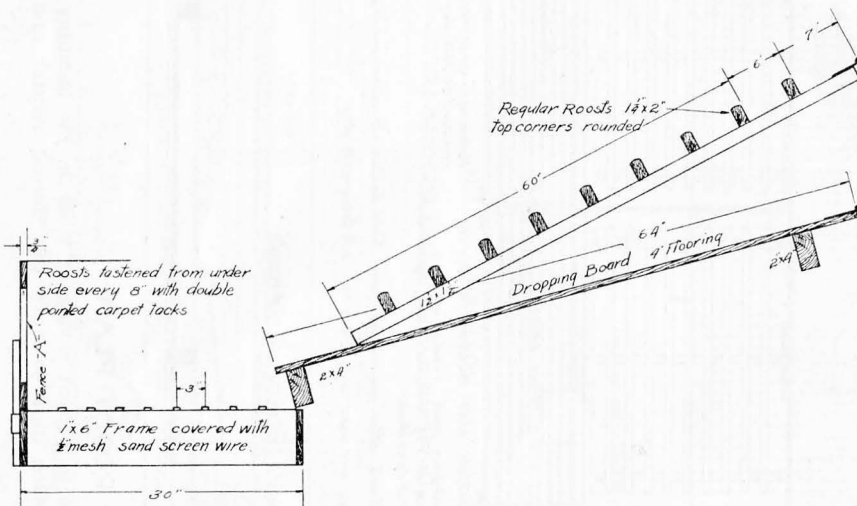


FORCED ROOST PLAN

When chicks are taught to roost at an early age, there is a great saving of labor in the handling of them besides they are much healthier and cleaner. Heretofore, it has been difficult to teach them to leave the "forced roosts" and take the upper roosts. The adjustable upper roosts solves the problem.

evening feed the chicks are all driven outdoors and the exit slide closed. If the evening is at all dark, two lanterns are hung up inside the brooder so the chicks can see to find their way and learn the new method of going to bed. After all the chicks are outdoors the fence sections are put in place by slipping the bottom of the standards into the tin or galvanized iron sockets on the side of the forced roost sections. These fences should stand up rigidly and be easy to remove, so plan a simple attachment which does not require nailing. The droppings board section nearest the chick exit does not require a forced roost section in front of it, as there is sufficient room on the four 8-foot sections in conjunction with the large number which take the upper roosts the first night to accommodate twelve or even fourteen hundred chicks at this age.

The slanting fence shown in the ground plan illustration is six inches higher than the regular fence sections, because it does not rest on top of



READY FOR THE FIRST LESSON.

Showing arrangement of adjustable upper roosts and the "forced roost" section with the retaining fence in position.

the forced roosts. This is fastened in place with two screw eyes. The hover is now raised as high as it will go and additional heat is turned on so that chicks will be comfortable when spread out at some distance from the stove. In fact, the room will seem uncomfortably warm to the caretaker, but chicks are thus induced to settle down without all trying to get in the one warmest place directly in front of the stove. The exit is now opened and an additional caretaker sent out into the yard, so that all stragglers are driven back in, and the exit again closed. The flock must be kept in motion at this stage. A broom is a handy tool for this work. Most of them soon find their way to the far end of the fenced-in roosts, but a few of them do not like this wire-bottom bed and try to get back onto the straw at the exit. This should not be permitted. Chicks must learn to do it themselves and the caretaker should avoid placing them with the hands as they will expect the hands to do it the next night.

This program must be continued for four consecutive nights. Occasionally, we have had to keep the fence up five nights, but after the fifth

night, the fence sections are all removed and the chicks go to bed on the roosts by themselves. At this stage about 75% of them are using the upper roosts. During the teaching period the excessive heat is only kept up for about an hour, and can be reduced as soon as chicks are well spread out.

The droppings should be cleaned out from under the forced roost sections and from the slanting dropping boards every day, as the strong acrid odor affects the tender nasal passages of the young birds and may cause colds and windpipe infection. At the end of the sixth week, all the dropping boards are raised up to the horizontal position, except the one section in front of the stove, which is left down as a stairway for the backward chicks which don't attempt the 24-inch flight from the floor. One forced roost section is also left in front of the stove during the seventh week. Commencing the eighth week all heat is dispensed with and all dropping boards are horizontal with the front side of the adjustable roosts supported six inches clear of the dropping board, by baling wire attached to the rafters. During this week, the first lot of 100 largest cockerels are removed to the fattening crates, and the chicks are chicks no longer, but have become chickens.

When the new laying house is used for a brooder, a four-foot width of two-inch mesh wire is used as a ladder from the inner edge of the forced roosts, slanting up to the edge of the dropping boards. Lath are laced through this wire to afford better climbing. Blueprint plans of this open front brooder, together with list of building material necessary, will be sent to any resident of the state for \$1.00. The price to non-residents is \$2.00. The list of material alone, without the blueprints, can be secured for 10 cents.

Suggestions:

- I. As shown in the illustration, have overflow pipe discharge outside of the building, not on the floor or under the floor. This is an added fire protection.
 2. Lay all pipes on top of floor so they can be readily cleaned.
 3. Keep 1 inch to 1½ inch of sand under the hover and extending at least a foot beyond by using a form made of strips 1½ inches wide and 4 feet long. This increases fire protection, warmth and ease of cleaning.
 4. Use a curtain of black oilcloth around the metal hover. Begin with a curtain 4 inches from the floor, gradually raise as the chicks develop. The black curtain makes a darkened interior.
 5. Fresh air for the chicks should come from the open front of the brooder and be drawn under the hover over the circle of chicks rather than up through the floor.
 6. Oats may be sprouted under the forced roost sections on the brooder floor to furnish green feed for the chicks.