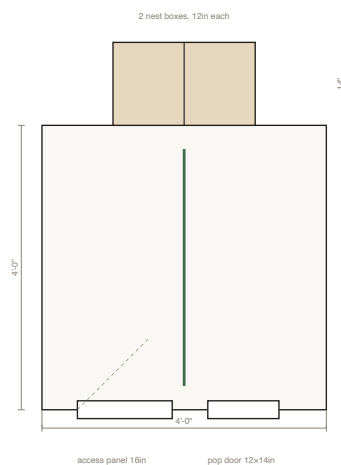


FLOCKSAVVY COOP PLANS

The Four

A raised, shed-roof coop for **4 standard hens** — 4'-0" × 4'-0", built from 2×4s and sheet goods, with the ventilation and predator-proofing specified rather than left to chance.



What's in these plans: dimensioned drawings, a complete cut list, a materials list with quantities, a step-by-step build sequence, and the details that decide whether a coop works — roost height, nest placement, vent area, apron width.

Plan view — 4'-0" × 4'-0" = 16 sq ft. Roost (green): 1 × 2×4 at 3'-4", wide face up, 24in above the floor.

Licence: for your own personal use. Build as many coops as you like for yourself, and modify them freely. Please don't redistribute or resell the file itself.

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The Four — 21 pages. Every dimension in these plans is drawn to scale.

Before you cut anything

What this coop holds – honestly

The floor is 16 sq ft, which is **4 standard hens** at the 4 sq ft per bird that keeps a flock healthy. You will see coops this size advertised for two or three times as many birds. They are describing birds that physically fit, not birds that live well: overcrowding is the root cause behind most pecking, smell, parasite and laying problems.

If you plan to keep bantams, count 2 sq ft each (8 birds). If you're in a climate where the flock is shut in for weeks at a time, count 5 sq ft (3 birds).

Skills and tools

This is a straightforward carpentry project — square cuts, screws, no joinery. If you can build a deck or a shed, this is easier. You need:

- | | |
|--|--|
| ☐ Circular saw or mitre saw | ☐ Tin snips (hardware cloth) |
| ☐ Drill/driver | ☐ Utility knife |
| ☐ Tape, square, pencil, level | ☐ Sawhorses |
| ☐ Staple gun <i>plus</i> screws and washers | ☐ Work gloves — cut mesh is vicious |

Time

Plan on **two weekends** for a first build: one for the floor, walls and roof, one for the run, fit-out and mesh. Experienced builders manage a long day plus a half day. The run always takes longer than people expect, because doing the mesh properly is slow work.

The specification

ELEMENT	SPECIFICATION
Coop footprint	4'-0" × 4'-0" = 16 sq ft
Capacity	4 standard hens (4 sq ft each)
Floor height	18" off the ground, open underneath
Interior height	4'-0" at the front, 3'-4" at the back
Roof	shed, 2.0" of rise per foot, 12" front overhang
Roost bar	3'-10" of 2×4, wide face up, 24" above the floor
Nest boxes	2 × 12 × 12 × 12", external, hinged lid
Service opening	16" × 42" access panel — you clean it reaching in
Ventilation	1.6 sq ft — a 5" strip the full width
Pop door	12" wide × 14" high
Run	40 sq ft (4'-0" × 10'-0") for 4 birds, 6 ft tall, fully covered, 30 × 68" gate
Mesh	½" hardware cloth throughout, 18" apron

Why these numbers

The roost sits above the nest boxes. Chickens instinctively sleep at the highest available point. If the nest boxes are higher, they sleep in them, and you collect eggs covered in droppings. This single relationship causes more frustration than any other design mistake.

The vents sit above the roost. Chickens tolerate cold far better than damp. Warm, moist air from breath and droppings has to leave the coop, and it leaves at the top — but never across a sleeping bird. High vents, still air at roost height.

Three decisions to settle now

- Where.** High ground that drains, shade in summer, and close enough to the house that you'll visit it twice a day in the rain for years.
- Rules.** Flock limits, rooster bans and setback distances from property lines are common. Check before you build, not after.
- Growth.** Most keepers add birds within a year. Building 30–50% bigger now costs far less than building twice.

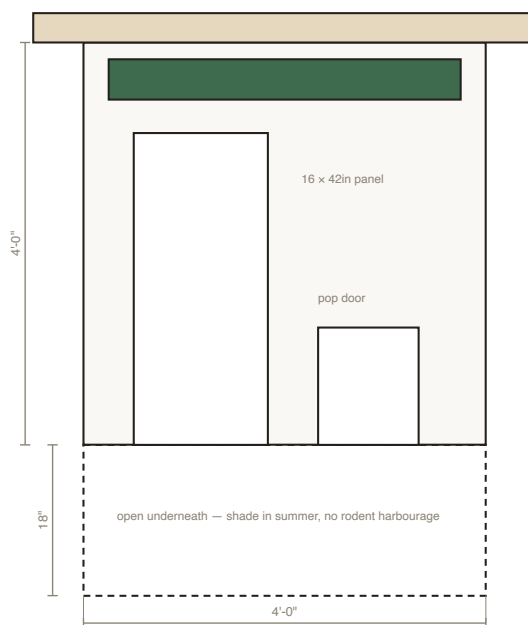
The floor is raised. It keeps the structure dry, removes the dead space where rats nest, and gives the flock shade and a dust-bathing spot underneath.

The run is oversized on purpose. Birds spend most of their waking hours out there. Coop space stops arguments at night; run space stops them all day.

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Elevations

Front elevation

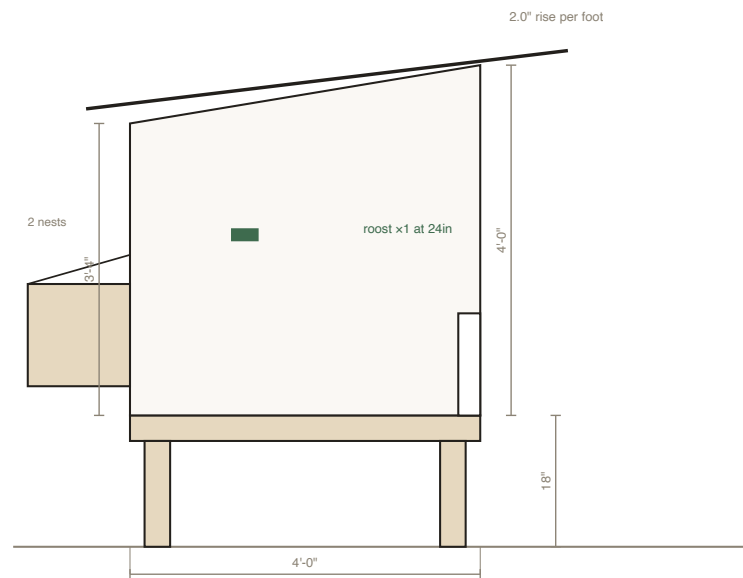


Front elevation (high side). Green = the vent strip: 5in high, full width, backed with hardware cloth and left open all year. The overhang keeps rain out of it.

The front is the tall side, and it carries the ventilation. The strip runs the full 4'-0" of the wall, immediately under the eave, and it is **5 inches high** — that is what gives the 1.6 sq ft of vent area this floor size needs. The 12in overhang above it is not decoration: it is what allows the strip to stay permanently open, in rain, all winter.

Below the floor, the 18in gap is deliberate. It keeps the timber out of standing water, denies rats the enclosed void they would otherwise nest in, and gives the flock dry shade and a dust-bathing spot without costing you any extra footprint.

Section

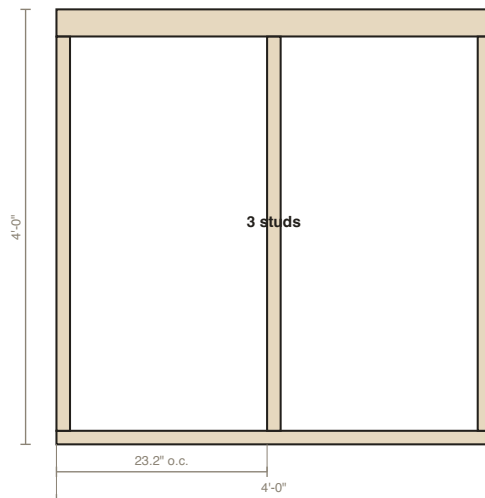


Section — the roost sits at 24in: above the nest boxes (so nobody sleeps in them) and below the vents (so nobody sleeps in a draught). Height above that belongs to you, not to the birds.

This drawing is the one to get right. Reading from the top down: vents at the eave, then a quiet zone, then the roost at **24 inches** above the floor, the nest boxes below it, and the pop door at floor level.

Roost above nests because hens sleep at the highest point they can reach — put the nests higher and they will sleep in them and foul the eggs. **Vents above the roost** because moist air must leave the coop without blowing across a sleeping bird: still air at roost height, moving air at the ridge. Those two relationships matter more than any dimension on this page, and they hold no matter how you resize the design.

Front wall framing



Front wall framing — 3 studs at 23.2in on centre, doubled top plate

The back wall is framed identically at 3'-4". The side walls use the same stud spacing, with the top of each stud cut to the roof slope.

Squaring, once, properly

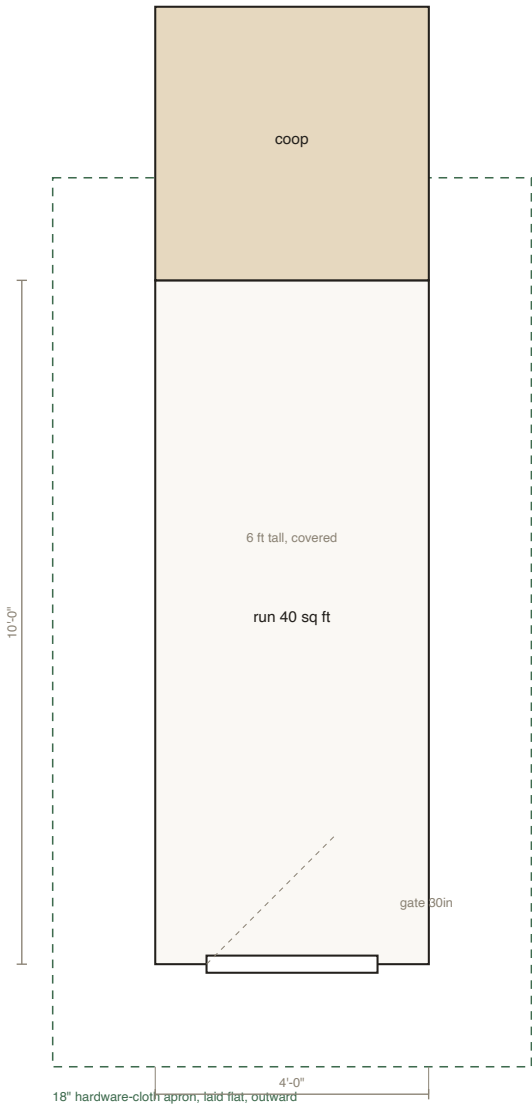
After the floor frame is screwed together and before you deck it, measure both diagonals. They must be equal — push the frame until they are, then fix a temporary brace across a corner. Every wall, rafter and door in this build inherits that measurement, so it is worth five extra minutes.

Fasteners

Use 2½in exterior screws for framing and 1¼in for sheet goods. Skip nails: a coop gets moved, leaned on and cleaned aggressively, and screws let you take a wall apart without destroying it when you extend the run in a year.

The trick that saves an hour: don't measure each side stud. Stand the front and back walls, lay a straight 2×4 across the top plates where the roof line will sit, and mark every side stud against it in place. Cut to the marks and the slope is right, even if the ground was not perfectly level.

The run



Run plan — 4'-0" × 10'-0" gives 40 sq ft for 4 birds; 6 ft tall walk-in run with a 30in gate

The run is attached to the front of the coop, full width, and it is a **walk-in run**: 6 ft tall, covered with the same ½-inch mesh as the walls, with a 30 × 68-inch gate in the far end. You walk in upright, and from inside the run you reach the access panel and the pop door, which both open off it. The panel swings into the coop, so it never fights the run mesh or a drift of bedding outside it.

The eight details that keep predators out

- ☐ **½-inch hardware cloth, never chicken wire.** Chicken wire keeps chickens in. A weasel passes through 1-inch mesh; a raccoon tears it.
- ☐ **Screws and washers, or furring strips over the mesh edge.** Staples alone pull out.
- ☐ **An 18-inch apron** laid flat on the ground, outward from every wall, pinned or lightly buried. Diggers follow the wall down, hit the apron, and give up.
- ☐ **Two-step latches** on every opening — barrel bolt plus clip. Raccoons open hooks and turn handles.
- ☐ **Cover the run**, against hawks and owls, and to keep it dry.
- ☐ **Mesh over every vent and window**, fixed from the inside.
- ☐ **No gap over 1 inch** anywhere — check roof-to-wall, under the pop door, around the nest lid.
- ☐ **Shut the pop door at dusk**, or fit an automatic one. Most losses happen at dawn and dusk.

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Materials

Shopping list

Lumber (2×4, buy in these lengths)

LENGTH	QTY	USED FOR
8 ft 2×4	42	framing, plates, rafters, roost, run frame

Quantities include the offcuts you'll get from longer boards. Buy one extra of the longest length: there is always one board too twisted to use.

The run is where the budget goes and where people economise. It is also where almost every loss happens. If you have to cut cost somewhere, make the coop plainer — not the mesh.

Sheet goods

PIECE	SHEETS	NOTE
Floor deck	1	cut to floor frame
Siding	4	wrap all four walls
Roof deck	1	overhangs front to keep rain out of the vents
Droppings board	1	optional, under the roost — halves cleaning
Nest box divider	3	1 row(s) of 2, 12×12×12in each
Nest box lid	1	hinged, sloped, with a drip edge
Pop door	1	12in wide × 14in high, sliding in a track

Mesh, fasteners and hardware

ITEM	QUANTITY	SPEC
1/2in hardware cloth — run walls	144.0 sq ft — sides and gate end	36in roll
1/2in hardware cloth — run roof	40.0 sq ft — covers the run	36in roll
1/2in hardware cloth — apron	54.0 sq ft — 18in flat, outward, all round	36in roll
1/2in hardware cloth — vents & windows	3.2 sq ft	—
Screws + washers	1 fasten mesh with screws and washers, never staples alone	—
Two-step latch	4 door, nest lid, pop door, gate — raccoons open hooks	—
Hinges	8 door, nest lid, run gate	3in

Also needed

6 PT 4×4 run posts at 6'-0" on post anchors (5 of the 2×4s, the run's bottom rails, also PT). Two 4×4 PT skids at 4'-0", roofing for 28 sq ft plus 10% waste, exterior screws (1¼" and 2½"), exterior paint or stain, and bedding — pine shavings or chopped straw, never cedar.

Cut list

Lengths are finished sizes. Cut the long pieces first and use the offcuts for the short ones. Measure your actual sheet goods before cutting the floor — plywood is rarely exactly 48 inches.

WHERE	PIECE	MATERIAL	LENGTH	QTY	NOTE
Floor	Skid	4×4 PT	48"	2	pressure-treated, sits on gravel or blocks
Floor	Rim joist	2×4	48"	2	front and back of floor frame
Floor	Floor joist	2×4	45"	4	16" on centre
Floor	Floor deck	3/4in plywood	—	1	cut to floor frame
Walls	Front plate (top & bottom)	2×4	48"	2	
Walls	Back plate (top & bottom)	2×4	48"	2	
Walls	Side plate (top & bottom)	2×4	41"	4	fits between front/back walls
Walls	Front stud	2×4	45"	3	24" o.c.
Walls	Back stud	2×4	37"	3	24" o.c.
Walls	Side stud (tapered)	2×4	45"	6	cut on the roof slope — mark from the plate, don't measure twice
Walls	Siding	T1-11 / 1/2in ply	—	4	wrap all four walls
Roof	Rafter	2×4	68"	3	bird's-mouth at both plates; 2.0 in rise per foot
Roof	Roof deck	1/2in ply	—	1	overhangs front to keep rain out of the vents
Roof	Roofing	metal or asphalt	—	27.5	sq ft, plus 10% waste

WHERE	PIECE	MATERIAL	LENGTH	QTY	NOTE
Interior	Roost bar	2×4	40"	1	WIDE FACE UP — 1 bar(s) at the SAME height, 15in apart
Interior	Roost support	2×4	24"	2	sets the roost 24in above the floor — above the nests, below the vents
Interior	Droppings board	1/2in ply	—	1	optional, under the roost — halves cleaning
Interior	Nest box divider	1/2in ply	14"	3	1 row(s) of 2, 12×12×12in each
Interior	Nest box lid	1/2in ply	—	1	hinged, sloped, with a drip edge
Openings	Pop door	1/2in ply	—	1	12in wide × 14in high, sliding in a track
Openings	Access door frame	2×4	42"	2	16 × 42in access panel — you reach in to clean
Openings	Access door head/sill	2×4	16"	2	frames the opening in the front wall
Openings	Vent strip	—	48"	1	4.8in high under the front eave, hardware cloth backed
Run	Post	4×4 PT	72"	6	6 ft above ground, on post anchors, at most 8 ft apart
Run	Top rail — long sides	2×4	60"	4	post to post; also carries the roof joists
Run	Top rail — ends	2×4	48"	2	one on the gate end, one screwed to the coop front

WHERE	PIECE	MATERIAL	LENGTH	QTY	NOTE
Run	Mid rail	2×4	60"	4	post to post at 36in, where the two 36in courses of mesh meet
Run	Bottom rail	2×4 PT	60"	4	post to post; ground contact: pressure-treated
Run	Bottom rail — gate end	2×4 PT	18"	1	either side of the gate opening
Run	Roof joist	2×4	48"	6	24in on centre, carries the roof mesh
Run	Gate stile	2×4	68"	2	gate 30 × 68in, on the end opposite the coop
Run	Gate rail	2×4	23"	2	top and bottom, between the stiles
Run	Gate brace	2×4	65"	1	diagonal from the bottom hinge corner up to the latch side — stops the gate sagging
Hardware	1/2in hardware cloth — run walls	36in roll	—	144.0	sq ft — sides and gate end
Hardware	1/2in hardware cloth — run roof	36in roll	—	40.0	sq ft — covers the run
Hardware	1/2in hardware cloth — apron	36in roll	—	54.0	sq ft — 18in flat, outward, all round

WHERE	PIECE	MATERIAL	LENGTH	QTY	NOTE
Hardware	1/2in hardware cloth — vents & windows	—	—	3.2	sq ft
Hardware	Screws + washers	—	—	1	fasten mesh with screws and washers, never staples alone
Hardware	Two-step latch	—	—	4	door, nest lid, pop door, gate — raccoons open hooks
Hardware	Hinges	3in	—	8	door, nest lid, run gate

Build sequence

1. **Level the site and set the skids.** Two 4×4 pressure-treated skids at 4'-0", on gravel or concrete blocks, level in both directions. Everything above is only as square as this.
2. **Build the floor frame.** Rim joists at 4'-0", joists at 16in on centre. Square it by measuring both diagonals — they must match. Deck it with ¾in plywood.
3. **Frame the four walls flat on the deck.** Front wall 4'-0", back wall 3'-4", studs at 24in on centre, doubled top plates. Frame the door and pop-door openings now, not later.
4. **Stand and brace the walls.** Front and back first, then the two sides between them. Check plumb before you drive the final screws, and brace diagonally until the roof goes on.
5. **Cut and set the rafters.** 3 rafters at 66in with a bird's-mouth at each plate. Cut one, test-fit it on both ends, then use it as the template for the rest.
6. **Deck and roof.** ½in ply, then metal or asphalt. Keep the front overhang — it is what lets the vent strip stay open in the rain.
7. **Cut the vent strip.** A 5in continuous opening under the front eave, full width, backed with hardware cloth screwed from the inside. Do not add a shutter: it stays open all winter.
8. **Side and paint.** Siding on all four walls, then paint or stain before fit-out — it is far easier with the interior still empty.
9. **Build the nest box bump-out.** 2 boxes at 12in, hung on the back wall with a sloped, hinged lid and a drip edge. Sloping the lid stops birds roosting on it.
10. **Fit the roost.** A 2×4 laid wide face up, 3'-10" long, set 24in above the floor — clear of the 18in nest bank and well under the vents. Add a droppings board underneath if you want to halve cleaning time.
11. **Hang doors and latches.** Service door, nest lid, pop door. Two-step latches on all three. Check for gaps over 1in with the doors closed.
12. **Build the run and lay the apron.** 40 sq ft, 6 ft tall, gate at the far end, meshed walls and roof, then 18in of hardware cloth laid flat on the ground all the way round, pinned down.
13. **Bed it and let it air.** 4–6in of pine shavings, feeder and waterer in place. If you painted, give it a couple of days to off-gas before the birds move in.

Adapting the design

Cold climate. Keep the vents exactly as drawn — the instinct to close them up is what causes frostbite. Add a wider roost (a 2×6 laid flat) so hens fully cover their feet, and deepen the bedding to 6–8 inches.

Hot climate. Extend the roof overhang on the sunny side, add a second vent strip under the back eave for cross-flow, and site the coop where it gets afternoon shade. Consider leaving one wall as mesh with a removable panel for winter.

Sloping ground. Set the downhill skid on taller blocks rather than digging — you want the floor level and the ground draining away from the run.

More birds later. The design extends along its length: add 2'-0" of framing, one more rafter bay, and the run grows with it. That is far easier than starting again.

First week

- ☐ Shut the birds in the coop and run for 3–4 days so they learn where home is.
- ☐ Check for gaps at dusk with a torch inside and you outside — light shows what a tape measure misses.
- ☐ Watch where they choose to sleep on night two. If anyone is in a nest box, lift them onto the roost after dark; a few nights fixes it.
- ☐ Look at the inside of the roof on the first cold morning. Condensation means not enough ventilation.

Maintenance that keeps it standing

Spot-clean droppings weekly and change bedding on your own schedule (deep litter works well in this design). Once a season: check the apron is still flat and pinned, retighten mesh screws, look for rot where the skids meet the ground, and re-oil hinges. Once a year: repaint the sun-facing wall before it needs it.

FlockSavvy Coop Plans • The Four • flocksavvy.com • Calculated and sourced, not field-proven. Every welfare figure is set against the publication it rests on in *Where these numbers come from*, including the two places where we deliberately depart from the recommendations and why. Local codes, climate and predators vary; you are responsible for the safety of what you build.

Where these numbers come from

Every figure in this plan set that affects a living bird or your flock's safety is set out here against the publication it rests on. The quotations are word for word, and each publication was read at source rather than summarised second-hand.

Built it? We'd genuinely like to see it —

hello@flocksavvy.com. Tell us what you'd change and it goes into the next revision of these plans.

What these plans are, and what they are not. They are *calculated and sourced*: every dimension is derived from the others by one engine, and every biological rule points below to its publication. They are not *field-proven*: no coop has yet been built from this set, and we would rather write that down than let you assume otherwise.

RULE	WHAT WE USE	WHAT THE SOURCES SAY
Coop floor space per hen We take the top of the American range, and we are still well below the 1 m ² (≈10.8 sq ft) the UK's RSPCA recommends. A plan that advertises more hens than this figure is not housing them, it is packing them in.	4 sq ft per standard hen	Virginia Cooperative Extension: "3-4" sq ft/bird inside. UGA Circular 969: "3-3.5 square feet of floor space for each bird you intend to keep for egg production." Penn State: "Allow at least 1.5 square feet per hen." ¹²³⁹
Outdoor run space per hen Identical to the recommendation. UGA and Penn State give no run figure.	10 sq ft per hen	Virginia Cooperative Extension, Table 1: "10" sq ft/bird in the outside run for laying hens. ¹
Roost length per hen We take the top of the most generous range.	10 inches per hen	Virginia Cooperative Extension: "With chickens, always provide 8-10 inches of perch space per bird." Penn State: "Provide 6 linear inches of perch space per bird." ¹³
Roost above the nest boxes The engine honours this without exception. It sets the roost height, which in turn sets the headroom you need above it.	The roost always sits above the top of the nest boxes	Penn State: "Place roosts ... higher than the nesting boxes so hens do not sleep in, and foul, the nests." ³
Roost height ⚠ Said plainly: we found NO study establishing a direct link between roost height and bumblefoot. What is documented is the risk of hard landings in older birds and heavy breeds. A low roost is a reasonable precaution, not a proven prescription.	Calculated: top of the nest boxes + 6 in, capped by the headroom under the roof (24 in on the common models). A landing rail is added above 30 in.	Penn State places roosts "24 inches above the floor." Today's Veterinary Practice, on foot lesions: older birds "can benefit from perches placed closer to the ground to avoid injuries from hard landings," and large, fast-growing breeds are a recognised contributing factor. ⁸³
Number of nest boxes More generous than all three. Enough boxes is what stops floor-laying, which is how eggs get dirty and broken.	1 nest box per 3.5 hens, never fewer than 2	Virginia Cooperative Extension: "Always provide at least one nest for every 4-5 females in the flock." UGA: "One nest box for every four to five hens is adequate." Penn State: "at least one 12-inch-by-12-inch nest for every four hens." ¹²³
Nest box size Identical to the recommendations.	12 × 12 in internal	UGA: "Boxes 12 in. by 12 in. half-filled with straw or other clean litter material are ideal." Penn State: "one 12-inch-by-12-inch nest." ²³

RULE	WHAT WE USE	WHAT THE SOURCES SAY
Nest box height above the floor ⚠ WE DIVERGE HERE, and this is why. The rule that outranks everything is roost above nests. In a 4-foot-tall coop, nests at 24 in would push the roost to around 40 in — a drop of more than a metre every morning for a heavy breed. We lower the nests so the roost can stay low while the hierarchy is respected. In the walk-in, where height is not scarce, the trade-off does not bite the same way.	Bottom of the first row 4 in above the floor	UGA: “Raise the boxes about 2 ft above the ground.” Penn State: “Place nests 24 inches above the floor and away from the roosts.” ²³
Wire mesh ⚠ THE WARNING THIS PRODUCT WAS MISSING: ½ in stops a raccoon, a fox and a dog. It does NOT stop a weasel or a mink, which pass through ¼ in. If mustelids live where you do, run ¼ in hardware cloth on the coop openings, not ½ in. Chicken wire counts for nothing in either case: it keeps hens in, it does not keep predators out.	½ in hardware cloth on every opening and throughout the run	University of Kentucky ID-245, on the least weasel: it “can squeeze through holes as small as ¼-inch in diameter,” and on snakes: “if a snake can get through gaps that are ¼-inch in diameter or smaller, the gaps are too small to allow predation damage.” University of Maryland: “Limit the number of gaps greater than 1/4 inch where chicken’s roost.” Colorado State recommends “1-by-2-inch mesh or smaller welded wire” against raccoons and mustelids. ⁵⁴⁶
Anti-digging apron We lay the apron FLAT instead of digging a trench: a digger starts at the base of the barrier, hits horizontal wire and gives up. It is wider than Virginia’s 6-inch toe-out, and it saves you digging a 12–18 inch trench around the whole perimeter.	18 in hardware cloth apron, laid flat outward and pinned to the ground	University of Kentucky ID-245: “It is advisable to use hardware cloth and bury it at least 12 inches into the ground to deter diggers like foxes, coyotes, and rats.” University of Maryland: “Dig a trench 12 inches to 1.5 feet deep around the entire coop and bury hardware cloth there.” Virginia Cooperative Extension: bury “at least 12 inches deep” and “toe the fence outward about 6 inches.” ⁵⁴¹
Raised floor We go higher than the foot recommended: any lower and the space becomes usable by the hens themselves rather than staying a place rats cannot nest in undisturbed.	Underside of the floor 18 in above the ground	Colorado State University Extension advises raising the coop “off the ground by a foot or so.” ⁶
Ventilation area — NOT SOURCED ⚠ We apply this rule because it is cautious and universally practised, but we cannot attach it to a university source, and we would rather say so. What IS documented, and what these plans follow: the outlets go HIGH, above the roost, so moist air leaves without blowing across sleeping birds.	1 sq ft of vent per 10 sq ft of floor, as a high strip above the roost	NO university publication found that puts a number on this ratio. The University of Kentucky page on ventilation (poultry.extension.org) explains the function — removing moisture, ammonia, carbon dioxide, dust and heat — and the physics of the chimney effect, but gives NO area. The only pages stating the 1:10 ratio are commercial. ⁷

RULE	WHAT WE USE	WHAT THE SOURCES SAY
Framing spacing These are construction figures, not welfare figures. They do not replace your local building code, which always takes precedence.	Studs at 24 in on centre, floor joists at 16 in	Standard North American light-frame spacings, chosen here so that 4 × 8 ft sheet goods land on framing without extra cutting.

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<https://flocksavvy.com/research/chicken-coop-space-rules/>

Extension-service recommendations differ between states and change over time. Where they disagree, we take the figure that is most generous to the bird and say so. Where we depart from them, the reason is written in the table above.