

RABBITRY
CONSTRUCTION
COSTS

UNIVERSITY OF CALIFORNIA
AGRICULTURAL EXTENSION SERVICE
SAN BERNARDINO COUNTY

UC Cooperative Extension

AGRICULTURAL EXTENSION SERVICE

566 Lugo Avenue

San Bernardino, California, 92410

UC Cooperative Extension

COMMERCIAL RABBITRY CONSTRUCTION

Introduction

Rabbit production in San Bernardino County has been expanding steadily over the past five years. Annual reports of the Agricultural Commissioner show production in 1964 of 323,000 head, compared with 142,500 head in 1960. These figures reflect a commercially productive, expanding industry. Existing rabbitries have expanded to the capacity of their present housing facilities, and newcomers have built housing that is as varied in design as it is in cost.

To estimate construction costs for a commercial operation, a hypothetical rabbitry was set up. The building design was based on the thinking of the men commercially active in the rabbit industry throughout San Bernardino County. The building construction and ideas were reviewed and discussed with commercial construction contractors.

Several commercial metal units are on the market, and readily available. These should be explored. However, the wood-frame rabbitry is the type generally constructed at present, so construction costs for this type structure are considered here.

The structure devised is a unit that could be utilized as an addition to an existing rabbitry, or as the beginning of a new rabbitry with which a novice producer could house an initial expandable herd. The unit will shelter 100 working does. This is the herd number felt to be most economical both for a beginner or for a producer who wishes to expand.

For the existing producer, it would provide additional shelter with a capacity most capable of readily absorbing the investment costs without undue strain. For the beginner, it represents an investment of a magnitude that will require, but not to excess, perseverance and determination. While he is learning with a small herd, the additional room provided gives space for increasing the developing juniors in the herd. This plan also provides holding pens, an item in constant demand.

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Building code requirements vary between areas. When a building is contemplated, it is advisable to check with the local building inspector.

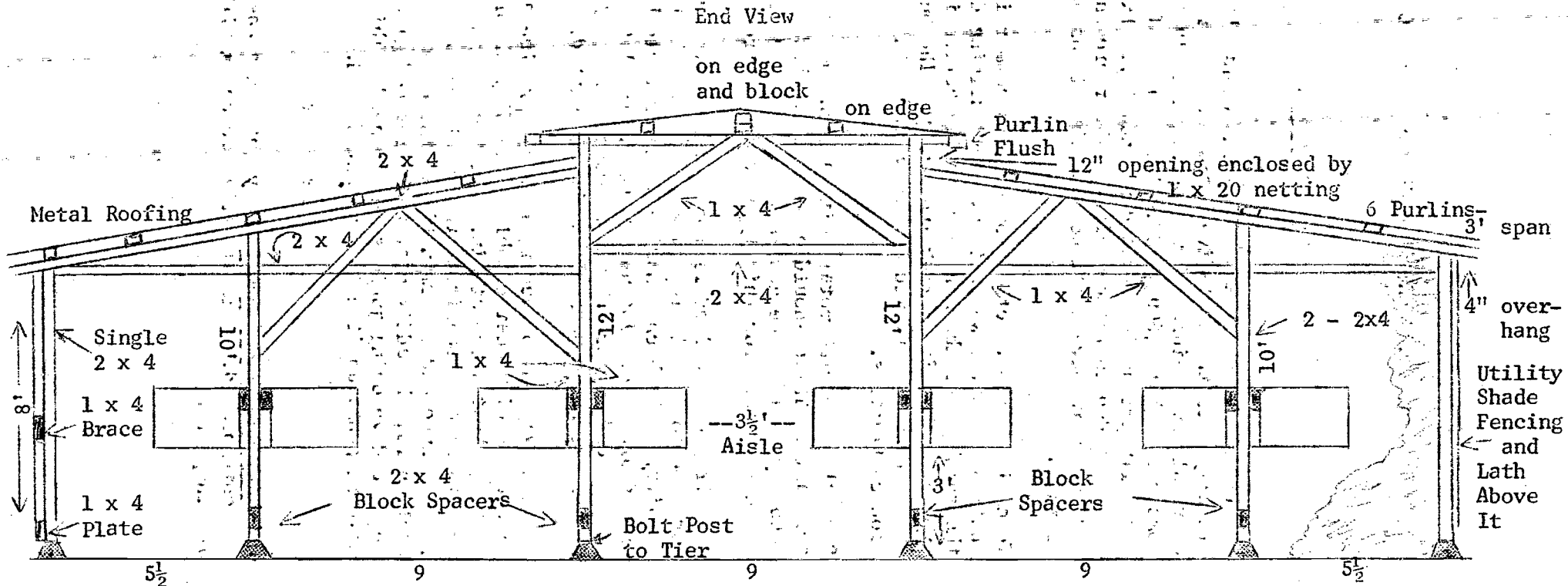
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METHOD OF CONSTRUCTION

Framing

To shelter a working herd of 100 and provide incentive and expansion opportunities as well, the building dimensions are 38 feet wide and 64 feet long. Such a building would adequately provide 128 holes—100 for working does, 10 for senior bucks, 5 for junior bucks, 7 for junior does, 3 for lights (grow pens), and 3 for holding pens.

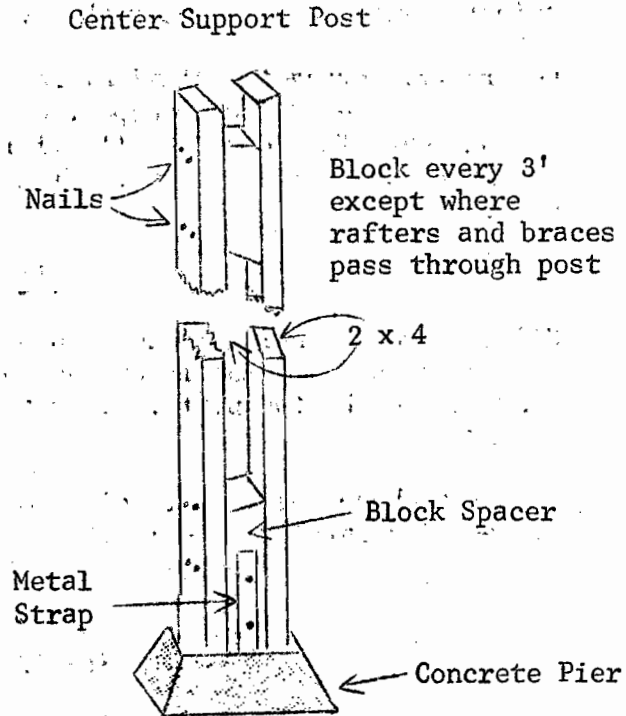
The building is erected in 8-foot increments. It contains eight rows of suspended double hutches that are 6 feet in length. Each of the rows of hutches terminates one foot within the second to the last 8-foot increment. This space is reserved for storage as well as for turning of feed and gathering carts.



The structure is laid out and squared. Fifty-four concrete pier blocks imbedded with a steel strap are set out. The building upright forms are made and erected upon these piers and braced. The supporting uprights are of 2" x 4" lumber. Those in the center are 12 feet in length. At the outside edge they are 8 feet, while those 5½ feet in from the outside edge of the building are 9 feet in length and cut to precise height.

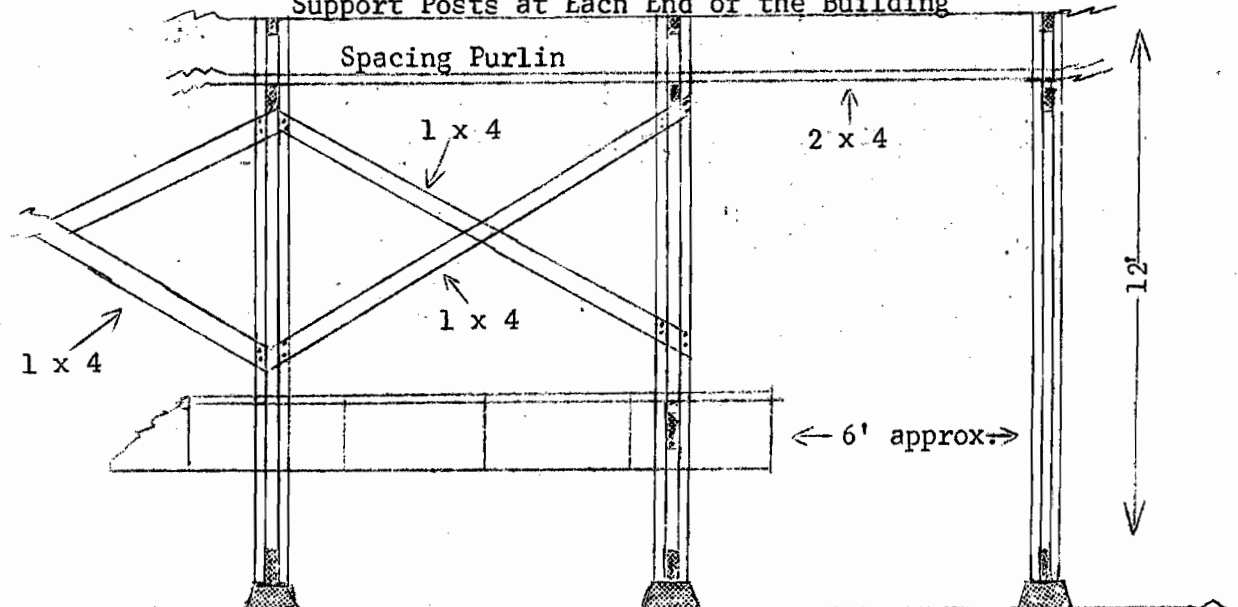
As the frames are set, purlins are run. The first purlins tied in are the spacing purlins. These are tied and then braced. This procedure is continued until all frames have been erected. When all have been erected, pier plates are laid and the outside support posts are set.

The 8-foot studs are then run down from the edge of the rafters and set with the base plate on the top of the outside row of piers. At midpoint of each stud, a 1" x 4" stringer is fastened. This stringer will simultaneously support the upper edge of the lower roll and the lower edge of the top roll of the 8-foot high utility fencing used to enclose the building.



End Section Bracing

2nd and 3rd Section Bracing of Center Row of Support Posts at Each End of the Building



Roofing

Roof sheeting is applied on the purlins. The 22-foot metal roofing sheets are pre-cut to size. The smaller section, $6\frac{1}{2}$ feet in length, is used as the top sheet. The remaining section, $15\frac{1}{2}$ feet, is applied on the lower roof section. The opening between the top sheet and the lower roof section is 12 inches. This is closed with 1-inch mesh, 20-gauge, poultry netting to prevent birds or animals from entering the rabbitry through the roof opening.

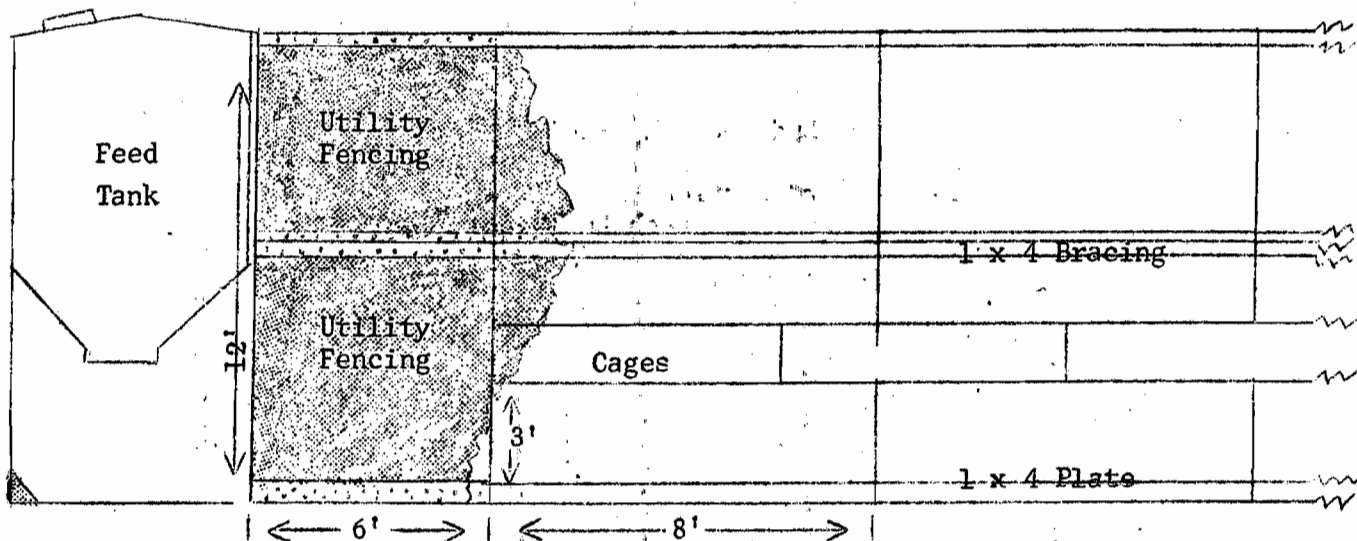
Generally, corrugated aluminum roofing is specified, but corrugated steel sheeting is stronger and can support a greater load for a given span. After the second year of exposure, reflectivity of either of these two roofing metals are reported to be very similar. With these considerations, prices should be compared.

Building Enclosure

Utility shade fencing is used to enclose the building. The lower roll of fencing is fastened to the lower base plate, while the upper roll of fencing is fastened to the top plate. They are both fastened at mid-point to the 1" x 4" stringer.

The area above the 8-foot height of fencing in each end of the rabbitry is enclosed with lathing material.

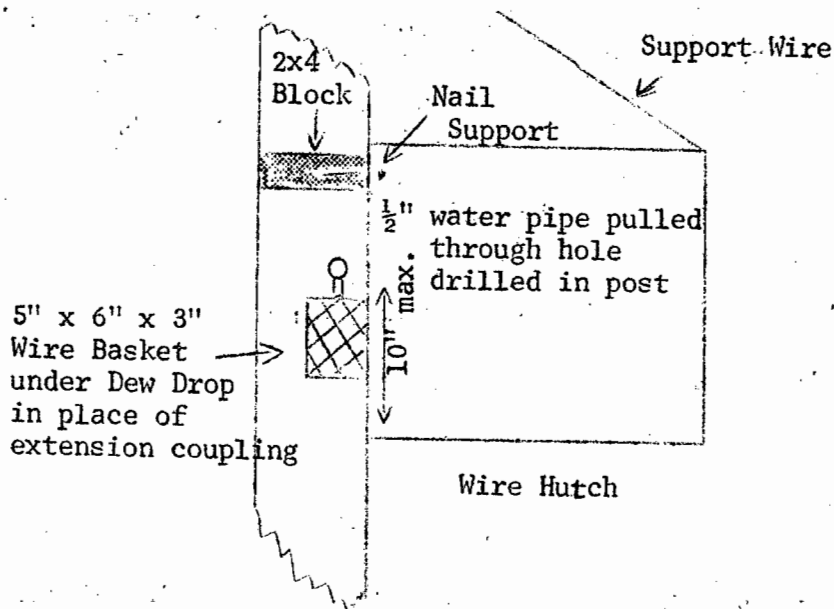
Side View and Fencing



Hutches and Water

Wire cage hutches are predominantly recommended and used. The building constructed will accommodate eight rows of such cages. Each row will have eight wire cages, 6 feet in length, to provide a total of 128 holes. Mounted back-to-back on a center support, running parallel to the length of the building, the cages are suspended from the overhead structures with 12-gauge, rust-proof wire. Each hutch will be supplied with a metal 1 $\frac{1}{2}$ -inch, 80-ounce feeder. Between the hutches in each row is a water line. This half-inch line, equipped with dew drops, regulator, and medication tank, will provide a continuous water supply to each rabbit hutch.

Water Pipe Installation and Hutch Support



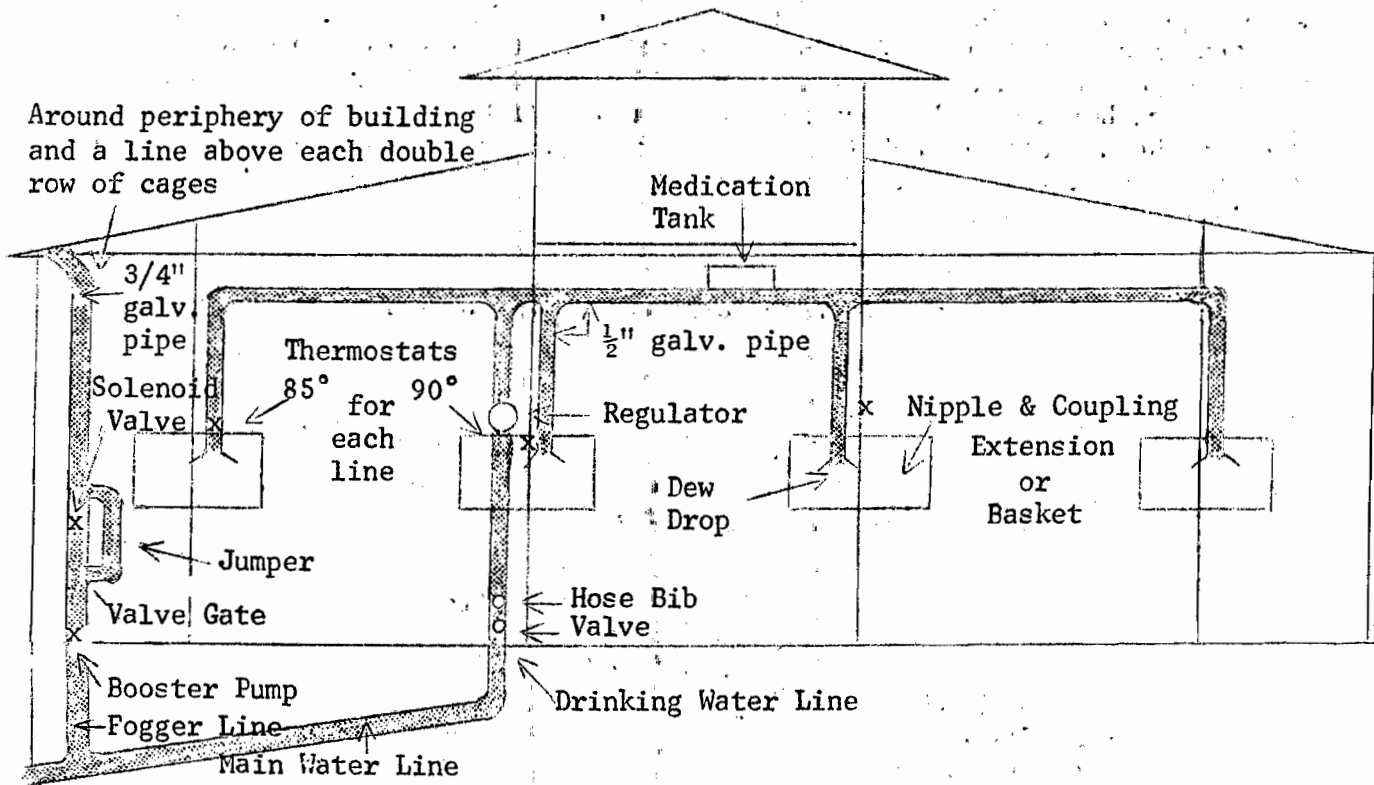
Cooling System

To cool the rabbits when temperatures start to climb, a fogging system is essential. A cooling system equipped with foggers, generally of one-gallon-per-hour rating and spaced every 3 feet in the line, is mounted inside the periphery of the rabbitry.

For emergency use, additional lines not lower than 3 $\frac{1}{2}$ feet above the cages are installed above each center row of hutches. The foggers in these lines are generally spaced 5 feet apart. However, spacing of foggers in a line will vary a great deal, and some experimenting will have to be done to satisfy the personal requirements of an operator.

The cooling system is completed with the installation of a booster pump and several thermostats. The thermostats, placed at a level equivalent to the top of a cage, are set at 85°F for the outside line, and 90°F for the inside lines. The outside line operates independently from the inside lines.

Water and Fogging Systems



Electrical System

To complete the rabbitry, an electric light system is installed. The electrical system can be a single installation of three rows of lights, utilizing 420 feet of wire, 18 pin sockets, nail knobs, and bulbs with a double-pole fuse box, all installed within a day or two.

This brief installation, however, is frequently short-sighted. While adequate for immediate needs, no allowance has been given for future expansion. Unable to carry an additional load, the entire installation must generally be replaced when the rabbitry is expanded. The cost in such cases is usually greater than if an adequate system had been installed at the outset. Consequently, cost of a commercially recommended electrical system, adequate for several future expansions, is included in the cost summary in this study.

Miscellaneous

To ready the rabbitry for occupancy, 50 nest boxes, a 4-ton feed tank, and a cart are necessary. Miscellaneous equipment eventually needed are a sprayer, burner, medicine cabinet, carrying cage, wheelbarrow, disposal pit, and an assortment of hand tools.

COST OF CONSTRUCTION

All costs shown reflect actual commercial retail costs. Reductions can be made by canvassing the market for material available. The use of either semi-rigid or flexible plastic pipe in lieu of galvanized pipe for water lines should be explored. Frequently, when salvage material is adequate, it can substantially reduce building costs. Many times it can be procured at less than half the going price. Bargaining ability can further reduce costs, but it is hoped it will not be at the expense of reliable, sound, and safe construction.

Summary

	<u>Total</u>	<u>Per Doe</u>
Building Materials	\$ 915.32	\$ 9.15
Water Line	102.70	1.03
Fogging System	250.41	2.50
Hutch Equipment	648.80	6.49
Accessory Equipment	526.30	5.26
Electrical System	188.74	1.89
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	\$2,632.27	\$26.32
Sales Tax @ 4%	105.29	1.05
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	\$2,737.56	\$27.37
Construction Labor	175.00	1.75
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TOTAL CONSTRUCTION AND EQUIPMENT COST	\$2,912.56	\$29.12
Average Land Value*	2,576.00	25.76
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TOTAL RABBITRY COST	\$5,488.56	\$54.88
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* 1962 Rabbit Management Study Average

Building Material Costs

Lumber.

Linear Feet	Pieces	Size	Length	Description	Feet	Total Feet.	Price (\$)	Ext. (\$)	Total
	18	2" x 4"	8'	Posts	96				
	36	"	10'	Posts	240				
	36	"	12'	Posts	288				
	108	"	8"	Block spacers	48				
	18	"	16'	Rafters	192				
	18	"	6'	Rafters	72				
	9	"	12'	Ties	72				
	9	"	10'	Ties	60				
	18	"	16'	Ties	192	1260	120/M	151.20	
	18	1" x 4"	6'	Braces	36				
	36	"	7'	Braces	84	120	110/M	13.20	
128		"		Plates		43	110/M	4.73	
1088		2" x 4"	16'	Purlin const. Fir-S4S		725	120/M	87.00	
400	8 rolls	-		Utility fencing - 4'		400	16.00	128.00	
240		1" x 4"		Fence bracing		80	110/M	8.80	
	4	Bndls.	4'	Lath			1.55	6.20	\$399.13

Miscellaneous

No. of Pieces	Size	Description	Total Feet	Price (\$)	Ext. (\$)	Total
54	12"x12"x10"	Pier blocks, concrete, metal strap 1/8" x 1 1/2"		1.10	59.40	
108	3/8" x 1 1/2"	Lag bolts		5.75	6.21	
25 lbs.	No. 16	Box nails		.20	5.00	
10 lbs.	No. 8	Nails		.20	2.00	
1 roll	12"	Poultry netting (1", 20-gauge)			5.40	
1		Gate and hardware			10.00	\$ 88.01

Roofing

64	26" x 22'	Aluminum sheeting	1408	297/M	418.18	
10	Boxes	Aluminum roofing nails		1.00	10.00	\$428.18

TOTAL

\$915.32

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Equipment Costs

Water Line

<u>Pieces</u>	<u>Description</u>	<u>Cost</u>	<u>Total</u>
128	Dew drops	\$ 23.04	
128	Nipple and coupling - 3" x 1/8"	24.32	
250 ft.	Pipe - 1/2" galvanized	35.00	
1	Regulator with 2 bell reducers	4.40	
1	Valve gate	3.75	
1	Hose bib	1.25	
1	Water check and reducing bushing	.95	
	Miscellaneous tees, elbows, unions, etc.	<u>3.99</u>	\$102.70

Fogging System

1	Booster pump	75.00	
282 ft.	Pipe - 3/4" galvanized	50.76	
80	Nozzles - 1 gallon per hour	44.00	
2	Thermostats	37.90	
2	Valves - solenoid	37.00	
1	Gate valve	4.25	
	Miscellaneous tees, elbows, caps, etc.	<u>1.50</u>	\$250.41

Hutch Equipment

64	Cages - (128 holes)	640.00	
22 lbs.	"J" clip fasteners	<u>8.80</u>	\$648.80

Accessory Equipment

1	Feed tank - 4-ton	230.00	
50	Nest boxes - metal	112.50	
128	Feeders - 11 1/2" - 80 oz.	108.80	
1	Medication tank	<u>75.00</u>	\$526.30

Electrical System

<u>Quantity</u>	<u>Description</u>	<u>Unit</u>	<u>Per</u>	<u>Cost*</u>	
1	Commercial meter can (rain tight)			\$17.72	
1	60-amp switch (rain tight)			19.33	
1	Panel 6 circuit			11.92	
24	4/0 boxes	30.80	C	7.39	
24	Porcelain keyless receptacles	46.50	C	11.16	
24	100-watt lamps	.25	ea.	6.00	
350	12/2 Romex w/grd	100.00	M	35.00	
100	12/3 Romex w/grd	150.00	M	15.00	
4	4/S boxes	41.25	C	1.65	
4	4/S raised covers	32.50	C	1.30	
4	1410 duplex receptacles	85.00	C	3.40	
20	1" conduits	48.37	C	9.67	
80	No. 6 TW wire	150.00	M	12.00	
60	Romex com	12.00	C	7.20	
1	25-foot service pole			<u>30.00</u>	\$188.74

* Included 16 hours of labor of installation.

C = Per hundred
M = Per thousand

Prices represent those for the San Bernardino area only. Quotations are based on 1965 retail prices, not on a bid-price.

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This publication is a revision of
"How Much Will It Cost?" authored
by John Van Dam, October 1963.

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