

Construction of a Chicken Coop for Use by an Early Education Facility

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There is a demand in the early education field for methods of exposing early learners to where our food comes from and how it's produced. An excellent source of this exposure is commonly utilized in an onsite chicken-coop. These coops are in essence working farms, producing eggs and in some cases meat. While coops are not prohibitively expensive they often fall outside the scope of normal operating or educational budgets and can be difficult to fund. The purpose of this project was to identify a school that could use and benefit from a coop at no cost to the school. The coop was built of douglas fir structural lumber, reclaimed redwood fence panels, and tin roofing panels. In addition an estimate was developed to project cost to complete the project using materials commonly available at local lumber stores.

Key Words: Timber construction, Service Learning

This project came about as the result of my wanting to use my carpentry skills to perform a project based senior project, contribute to my local community, and provide a local school with a needed resource. After consultation with a local elementary school teacher it was determined that a chicken coop would fulfill all three criteria.

The first step of the process was to find a school that wanted and could benefit from an on-site chicken coop. I first called an elementary school teacher who trains other teachers in a continuing education capacity. She made several suggestions and I developed a phone list. After making a few calls I determined Hidden Valley Preschool to be a prime candidate for my project both because of the nature of the school and its location near to me. Second I found a set of plans for a simple coop that would comfortably house enough hens to produce eggs in a useful number. The third step in the projects process was to obtain the materials necessary to construct the coop. 2x4s were obtained from my employer as scrap from local jobs we were performing at the time, five pounds of nails were donated by my employer, the coops cladding was redwood fence pickets which were part of a demolished fence, the coops roof was a tin roof panel that was on site at the school, I purchased the hinges, gate-latch, roof fasteners, hardware cloth, and poultry staples. I borrowed an air compressor, generator, and finish nail gun from my employer. I also used my personal carpenter's tools and skilsaw. The fourth step in the process was framing the coop which consisted of douglas fir 2x4s and pressure treated 4x4s for the coop legs. 16p bright nails were used to fasten the structural members to each other. The floor of the coop was comprised of ½" galvanized hardware cloth fastened at the edges by poultry staples. The cladding of the coop was attached with finish pin-nails driven by a pneumatic nail gun. I cut the roof panel to size with a cutoff wheel attached to an angle-grinder and attached the hex drive roof panel fasteners with an impact driver so that the rubber gaskets were seated but not crushed. The door was framed and hung and then the latch was installed. Minor planning was required to allow the door to seat properly. The school director determined that the coming spring would be the best time to stock the coop and so the project building phase was determined to be complete.

The most prominent pieces of knowledge came from methods and means of construction I employed in the construction of the coop. Firstly I found that the generator I had did not have the amperage rating necessary to run the compressor I needed for my nail gun. Prior to this experience I had never considered that air compressors needed more amps than a skilsaw, which ran and cut fine on the same compressor. Second I found that cutting thin sheet metal with a cut-off wheel caused a serious burr on the cut metal edge and that running the wheel along the edge was not an effective way of deburring the metal, in the future I would suggest using shears to cut any light gauge metal.

Overall this was a very satisfying project that should serve for years as an educational aid to the local preschool. The school was very appreciative and I was told that the students were very excited to learn what was being built. I'm sure once the coop is stocked their excitement will only increase.



Budget for coop materials:

ITEM:	QUANTITY:	UNIT PRICE:	AGGREGATE PRICE:
2x4 DF, 8LF	22	\$ 2.83	\$ 62.26
15/32 CDX PLY	1	\$ 14.45	\$ 14.45
4x4 PTDF, 8LF	1	\$ 10.27	\$ 10.27
5/8 x 5-1/2, 6LF Red-Stained Fir Dog-Ear Fence Picket	43	\$ 1.87	\$ 80.41
OR			
7/16 in. x 4-5/8 in. x 69 in. Heartwood Composite Dog-Ear Fence Picket	50	\$ 5.41	\$ 270.50
3 in. x 3 in. Black Strap Surface Mount Hinge (2- Pack)	1	\$ 3.83	\$ 3.83
Gate Latch	1	\$ 4.24	\$ 4.24
12 ft. Classic Rib Steel Roof Panel in Galvalume	1	32.98	32.98
OR			
24 in. x 12 ft. 29-Gauge Galvanized Corrugated Roof Panel	3	22.77	68.31
2 in. Fasteners W/Rubber Grommet 50 PCS	1	\$ 5.75	\$ 5.75
1/2 in. x 2 ft. x 5 ft. 19-Gauge Galvanized Steel Hardware Cloth	1	\$ 6.98	\$ 6.98
Hot-Dip Galvanized Staples (1 lb.-Pack)	1	\$ 3.46	\$ 3.46
ASSUMPTIONS: - Built in Santa Rosa CA -all tools necessary are owned -Moderate carpentry skills	Low Price Subtotal		\$ 224.63
	High Price Subtotal		\$ 450.05
	2016 Low Price Sales Tax in Santa Rosa CA (8.75%)		\$ 19.66
	2016 Low Price Sales Tax in Santa Rosa CA (8.75%)		\$ 39.38
	Low Price Total		\$ 264.01
	High Price Total		\$ 489.43
Material Price Range: \$264.01 - \$489.43			