

Outdoor Furniture Build for ECHO

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This paper outlines the building of outdoor furniture to be placed in the garden at El Camino Homeless Organization (ECHO). The outdoor furniture that was built included a couch, two chairs, and a coffee table, all of which were made from redwood. The client requested the construction of the outdoor furniture because they did not have any safe or quality seating in their garden for the residents and staff to enjoy. The El Camino Homeless Organization provides food and housing for homeless residents within Atascadero, California. The funds required to procure the building materials were donated by Niner Wine Estates. This paper will cover the different phases of building the outdoor furniture, which included estimating, planning and designing, material procurement, and the building phase, as well as the delivery to ECHO. This paper will also cover some of the challenges that the builder came across during the process, in addition to lessons learned, as well as how this project relates to the curriculum of Construction Management at California Polytechnic University. This project aimed to give back to a wonderful organization that is extremely significant to Niner Wine Estates as well as the builder.

Key Words: Outdoor Furniture, Build, Service, Lumber, Homeless Shelter

Introduction

This project is located at the El Camino Homeless Organization (ECHO) located at 6370 Atascadero Ave, Atascadero, California. The outdoor furniture was designed to be built off-site and delivered once finished. This location provides safety, housing, and meals for homeless members of the community. This includes many families with children. The opportunity to work with ECHO came about through Niner Wine Estates. Niner Wine Estates donates meals, services, and funds to ECHO monthly. After discussing the idea of providing some building services to ECHO with the owner of Niner Wine Estates, he agreed to fund the project if a proper estimate and proposal were provided. Once he had agreed to provide funding, the project idea was discussed with ECHO. ECHO provided some ideas for items they could benefit from having added to the property, such as a gondola or garden improvements. It was finally decided that outdoor furniture to provide seating in the garden would be the best option for ECHO and for the builder. Once this was decided, the builder created general plans and an estimate. After a final meeting with the owner, the project was approved and guaranteed funding.

Planning

After the project was approved as a Senior Project, it was time to get into the more serious phases of planning and procurement. The most important thing I learned during the early phases was communication, and it was sometimes hard to get texts back from the contacts at ECHO. The plan

was to get any ideas or requests they had for the outdoor furniture before plans were created so that the design could be with their interests considered. Once communication was improved, it became obvious that the contact at ECHO had more advanced ideas than the builder's skill level. It took many weeks before the final ideas were decided on. After a final idea was decided on, general plans were made by the builder. The plans were made with ideas borrowed from Pinterest and Etsy. The builder combined ideas to create their own design and plans that were in their skill level. The design included a three-seater couch, two deep-seated lounge chairs, and a coffee table. The couch was designed to be an extended version of the chairs so that the furniture would be aesthetically pleasing and comfortable. The design included the use of many 2x4s, 2x6s, and 1x3s, all with varying lengths. A handyman was consulted to ensure the furniture would be structurally sound and aesthetically pleasing. The handyman made suggestions on which fasteners to use and the best methods to use them. This included the use of a pocket hole jig to hide the nails. Due to the nature of outdoor furniture being transportable, it was decided that the construction would occur off-site at the builder's home. The builder's tools were already present at home, allowing the builder flexibility to work on the project whenever needed with very few restrictions. The final design was shared with contacts at ECHO as well as the plan to construct off-site and deliver the furniture. They agreed it sounded "perfect," so it was time to move on to the final estimate and procurement of materials.

Estimate and Procurement of Materials

When it came time to procure materials, things became a bit more complicated. An original estimate had been provided to the owner of Niner Winery in previous months; however, the price of lumber had skyrocketed. Additionally, the lumber originally available at Home Depot was no longer available. The builder created a new estimate based on availability at Home Depot, but the estimate was much higher than the previous one provided to the winery owner. This created a large amount of stress on the builder because they were going to have to take on the cost difference, which they couldn't afford. The builder sought advice from their mother, who reminded the builder that their neighbor owned a small local lumber yard in Santa Margarita, California. With the mother's help, the builder reached out to their neighbor. After discussing the project and design with the neighbor, the neighbor happily agreed to provide the lumber needed at a discount. Additionally, the lumber yard had its own mill and could cut the lumber sizes that Home Depot no longer provided. It was a fantastic solution to the pricing and procurement problem. A new estimate was created with the pricing provided by the local lumber yard, which came much closer to the original estimate provided to the winery owner. All lumber used was redwood, which was more affordable than other common furniture woods such as pine. An order was placed for all the lumber needed and picked up the day after. Only one stop at Home Depot was needed to procure the extra materials, such as fasteners, wood glue, and sealant. All materials were taken to the builder's home, and the construction of the furniture was ready to start.

Furniture Construction

At the start of construction, it was obvious that more than one set of hands would be needed to build the furniture, so additional help was sought after and agreed upon. The builder's partner agreed to help hold lumber in position while the builder was making cuts and screwing items together. The first phase of construction included the building of the couch. It was started by measuring out all the cuts that needed to be made prior to construction. Once all the lumber needed was properly measured, all the cuts were made. From there, the couch's construction started by building the legs and armrests. These were made using a pocket jig, screws, wood glue, 2x4s, and 2x6s. The next section to be built was the seat base. This included using a pocket jig, screws, wood glue, and 2x4s. To make this

section, all boards were laid out in formation on the ground, and screw locations were drawn out to ensure the finish would be even and aesthetically pleasing. Screw holes were pre-drilled. The boards were then held in place by the partner while the builder screwed them together. Once the seat base was assembled, it was attached to the already assembled arms and legs. This can be seen in Image 1.



Image 1: Armrest, Legs, and Seat Base of the Couch

The next step was to attach the 2x4 back supports with screws and a pocket hole jig. Once they were attached, the back frame was finished by placing the top board. From there, all that was left was to attach the seat and back slats across both the seat and back base frames. The 1x3 slats were attached using basic brown wood screws. Once the slats were fully attached, the couch was finished. All sanding and sealing would take place once all the furniture was built.

The second phase of construction included the building of the two deep-set lounge chairs. The process was very similar to the couch, being that the chairs were designed to be just a shorter version. The chairs were built simultaneously, so each step was repeated twice. The first step was to measure the lumber and make all the cuts. Next, the legs and armrest were put together. This can be seen below in Image 2. This involved using a pocket jig, screws, wood glue, 2x4s, and 2x6s. Following the assembly of the legs and armrest was the assembly of the seat base. To make this section, all boards were laid out in formation on the ground, and screw locations were drawn out to ensure the finish would be even and aesthetically pleasing, just as was done with the couch. Screw holes were pre-drilled. The boards were then held in place by the partner while the builder screwed them together. Once the seat base was assembled, it was attached to the already assembled arms and legs. The following step was to attach the 2x4 back supports with screws and the use of the pocket hole jig. Once they were attached, the back frame was finished by placing the top board. From there, all that was left was to attach the seat and back slats across both the seat and back base frames. The 1x3 slats were attached using basic brown wood screws. Once the slats were fully attached, the chairs were complete.



Image 2: Chair Armrest and Legs

The third phase of construction involved the construction of the coffee table. The coffee table was made completely of 2x4s, wood glue, and brown wood deck screws. To start construction, all needed lumber was measured, and the proper cuts were made. After the cuts were complete, a leg set was assembled. This involved attaching two legs to an apron, using two deck screws per joint. This step was repeated for the second leg set. Next, a breadboard end was attached, with screws, to the top of the leg set built previously. This step was repeated for the second leg set. The following step was to build the table base. This process involved laying out the lumber in the proper position and screwing each piece together. Once the base was built, it was attached to the individual leg sets. The final step was to attach flush top boards. They were evenly spaced around 1" apart and kept in place with deck screws.

The final phase of construction involved the sanding and sealing of all the completed furniture. The materials used for sanding included a sander and sanding pads. The couch was sanded first, the chairs second, and the table third. Once everything was sanded, a clear wood sealant was applied to ensure the furniture was weatherproof and would last longer. The sealant process started with hand brushes and then was adjusted to using a paint spray gun. This allowed the process to go much faster and created a smoother finish on the furniture. Once everything was sealed, the furniture was complete!

Delivery

Now that the furniture was finished, the last thing to be done was deliver it to ECHO. In order to deliver the furniture, a truck would have to be borrowed. The builder reached out to their father to ask for assistance. The builder's father agreed to loan his truck for the duration of the delivery. On the day of the delivery, only one issue arose, not all the furniture could fit in the truck simultaneously. The use of two separate vehicles mitigated this issue. The truck was used to haul the couch and coffee table while an additional car was used to haul the remaining two chairs. Once everything was loaded, both vehicles were driven to ECHO, where the furniture was unloaded and placed in the garden. An image of the furniture in the garden can be seen below in Image 3.



Image 3: Furniture in ECHO Garden

Challenges

The project encountered numerous challenges, which included communication difficulties with the client, obtaining direct answers regarding the furniture proved arduous, and the lack of knowledge about constructing furniture. However, thorough internet research on existing furniture helped resolve this issue, as well as learning to set boundaries and better communicate with the client. Additionally, procuring materials posed a challenge due to the project's potentially high cost and the subpar quality of materials from the initial supplier. This obstacle was addressed by switching to a different lumber supplier, which was a family friend of the builder's, and receiving discounted materials.

Further complications emerged during the building phase, as the cordless tools unexpectedly ran out of battery and the charger went missing. To overcome this setback, a borrowed corded tool was utilized, and the bit was interchanged between a boring bit and a drill bit as required. Transportation of materials presented another challenge since the only available vehicle was a car. With the help of the builder's father, a truck was arranged to be used—however, not all of the furniture fitted into the truck. Nonetheless, through careful arrangement, all the materials were successfully accommodated within the car, as depicted in Image 4.



Image 4: Materials Procurement

Lessons Learned

As part of this project, many invaluable lessons were gained. One especially essential takeaway from it all is the significance of perseverance when working with clients who lack communication or fail to address vital inquiries. Attaining responses from a client requires unflagging determination; getting their attention may involve more than sending text or phone messages - it may involve picking up the phone personally, visiting their office, and more. As it turned out, lacking the right tools doesn't always prevent a project from moving forward successfully. Although having access to a worktable and chop saw would have greatly expedited progress on building this furniture, its quality remains undiminished by their absence. Learning to adapt to different circumstances is vitally important in life - something this project taught me firsthand!

Relation to Curriculum

Woodworking skills developed through residential construction CM 214 were essential in assembling the furniture. Students collaborated closely on its creation. Professor Brinkman provided invaluable expertise and techniques that proved useful during the furniture's assembly. One notable tip from his class included using one cut piece as an exact template when measuring similar components. The curriculum also highlighted the value of maintaining effective client communication amidst communication challenges inherent to this project, in addition to covering essential topics like creating estimates and schedules, which were implemented directly during its duration.

Conclusion

This project successfully concluded for \$647, which exceeded the financial donor's satisfaction, providing valuable lessons in persistence in communication and adaptability to less-than-ideal circumstances. Additionally, the project made many staff and residents of ECHO very happy. Tying

this experience directly back into the curriculum proved especially fulfilling as it confirmed that Construction Management department coursework holds practical relevance within the construction field instead of simply being busywork. Lessons learned will surely find use elsewhere within the industry.

Photos



Image 5: Builder Making Cuts



Image 6: Layout of Couch Seat Base



Image 7: Spacing of Seat Slats



Image 8: Chair Materials



Image 9: Construction of Coffee Table



Image 10: Complete Construction of Furniture



Image 11: Sanding of Furniture



Image 12: Delivery of Furniture



Image 13: Furniture Delivered to ECHO Garden