

Completion of Hope's Village Tiny Homes

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In Fall, 2018 the Cal Poly Construction Management Department teamed up with the non-profit, Hope's Village, to create two tiny homes that are to be used for homeless shelters. The Residential Construction class built the structures, and I finish the siding for this plan. In finishing the siding I was in charge of the designing, planning and execution of the project.

Key Words: Hope's Village, Homelessness, Tiny Home, Lessons Learned

Introduction

According to a census done in 2017, there are approximately 1,125 homeless people living in San Luis Obispo. This number has been on the increase in San Luis Obispo, and community members have decided that something needs to be done. This is why Hope's Village, has decided to try and make a difference in this issue. Hope's Village is a non-profit founded by Becky Jorgeson. Jorgeson began the "Cabins on Wheels" program to try and provide tiny homes that are structurally sound and water tight for homeless people to lay their head at night. Cal Poly Construction Management Department decided to use the Learn By Doing montra to work and build two tiny homes for this initiative this fall. The Residential classes, lead by Stacy Kolegraph and Eric Brinkman, built two mobile tiny homes on trailers donated by Hope's Village that were each approximately 8' by 13'. These trailers were much larger with more complexity than the normal 6' by 8' sheds they build, so they were only able to finish the structure in these 10 weeks. I was part of the technical assistance that helped the student construct these tiny homes. At the end of the quarter the tiny homes were set to be moved out of the Simpson Strong-Tie Demonstrative Lab, and into the weather, with little protection from the elements. I quickly volunteered to complete the siding for these two tiny homes to ensure that they were watertight and weatherproof for Hope's Village.

Material Selection

The first step that needed to be taken was a meeting with Becky Jorgson of Hope's Village. Communication with her was one of the more challenging things throughout the project due to her living out of town. The initial conversation went well though as she was excited to hear that I was interested in completing the tiny homes for them. She stated that I have free reign of design, and she will work on getting donations, and if she could not then Hope's Village will pay for the material. When researching material for the siding my main focus was to find material that is lightweight, durable, and with a long life span as well as aesthetically pleasing. Most of my resource pointed me to corrugated metal siding, as it meets most of these criteria. The only one that it did not meet was aesthetically pleasing if I only used metal for the siding, in my opinion. So I began searching for one extra material that would complement the metal nicely. I landed on tongue and groove cedar siding. Now this material met most of the criteria, except it is not the most durable material. My initial solution to this was an ancient Japanese building method called Shou-Sugi-Ban, which translates to burning cedar board. This method is just that, I would lightly char both sides of the cedar board, and by doing this it does a few things to the property of the wood. First, it increases the waterproof of the wood as it is burnt and then covered with a oil that is water resistance. The next thing it does is it makes it so that it is insects repellent because there will be no nutritional value for such insects. The final thing that it does it is makes it so this wood is fire resistant because there is no more fuel for the fire to burn. For these reason I thought I would do this for the siding as it was unique, and seemed to meet all the criteria.

Estimating and Delivery

Now that the material has been chosen, next was to order the material. I began by creating an estimate. For this project I found that the best program to use was Bluebeam. The reason I found this to be true is because I was doing the design and estimate, I could make drawings to scale, as well as count each element. When I drew the elements to scale I gathered both length, and quantity needed. These are the main elements I used to calculate material needed. In the ordering of the material is where we ran into our first hiccup. Becky believed that places such as Home Depot, or Hayward Lumber would happily donate much of the material for the cause. However, after speaking to managers at Home Depot, they donated a whopping fifty dollars. Enough for the caulking needed. Next, we spoke to Hayward lumber and they made slightly larger donation, but Hope's Village had to paid for the rest. The total bill came out to approximately \$1,000 for both tiny home. The material deliveries were pushed

back approximately two weeks, and this was our first delay in the schedule. A few more minor setbacks occurred throughout the building process, but nothing that was too major to jeopardize the completion of the project.

Construction

All of the building was done by me, and two friends, Joey Freschet, and Zach Martin. Joey is a fellow construction management major, and Zach an inspiring firefighter. The first thing that I learned during the building process was the importance of planning beforehand. While I created a plan, I had not properly thought through the entire process. Because of this we made mistakes early on that slowed our progress. The first mistake that was made was that we applied the corrugated metal before doing the corner trim. This was done because we believed that we could cut hatch marks throughout the corrugated metal, and then apply the trim over the metal. This led to a noticeable seam with visual gaps. Our solution to this problem was to install the trim first and then butt the factory edges up against the trim. This led to a much cleaner finished product. Our next mistake was that in following this thought process we then proceeded to install all the window trim. This however again made our process harder because now we had to notch the wood planking around the trim. What should have happened was to run the wood planking to the window, and then install the trim over the siding, to give a cleaner finish look.

The second thing I learned during this process was the importance of minimizing mistakes early in the process. Since this structure was built by students, who are not experienced framers, there were a few issues that made the finishes much more difficult. An example of this is that when the roof was set on the tiny homes, it was offset by about a half inch on each side. This caused an issue when Applying both the sheathing, and the siding because it was not flush. To fix this we simply shimmed out the siding to keep a level plane. This took some time, however, because there was only a four inch gap between the eave and wall, and made access to this area difficult. Another mistake that was made earlier in the stages that made things more difficult is little mistakes in framing, such as gaps, or wood over hanging. The reason that this made things more difficult for me is because an 1/8th of an inch in framing comes to be a quarter in sheathing and then a half of an inch in siding. This taught me that the little mistakes in the beginning compound to create big mistakes in the end. I now know why it is important to be as accurate as possible early in the process. I believe that this will help me greatly in the future as it can help prevent larger problems down the road by taking the little extra time to fix mistakes early in the process.

Conclusion

San Luis Obispo has an increasing problem of homelessness, and I am glad to say that the Construction Management Department, and myself have taken action in trying to find a solution for this problem. Along with helping the community I learned throughout this entire project. I was able to take the knowledge that I learned in a classroom, and apply it to the real world. In doing this I understand the difficulties in planning and executing a plan, moreover, I learned the importance of a detailed plan and following the details. As I have been told before, and now I understand more than ever, “plan the work, and work the plan.”

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