

Rodeo Arena Observation Deck

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This report details the process that brought about a large deck that was built at the Cal Poly Rodeo Arena by two students, Timothy Smith and Ryan Fiorio. The project itself was over a year in the making, starting from an idea of Ben Londo, the Cal Poly rodeo coach, to a lengthy approval process and lots of time to fundraise the required money. The project was completed in June of 2020. This project used TimberTech composite decking per the request of Ben Londo. It was also built extremely rigid with the use of pony walls instead of posts to accomplish this goal. We performed lots of research and outreach to create the best product for the rodeo team. Tim and I worked with Kyle Harris of Harris Architecture and Design to come up with an overbuilt framing plan. We worked to find the best materials at the best price to complete this project; that is how we ended up with Weyrick Lumber, an outstanding company, as our supplier. Through teamwork to create a high-quality estimate and schedule, Tim and I were able to perform this significant deck project.

Key Words: Teamwork, Deck, Design, Estimate, Schedule

How the Project Came to Be

An observation deck at the rodeo grounds was a much-needed addition. It provides an area for VIPs to view events, as well as a location for fundraising events and dinners on the rodeo grounds. This project came about in the spring of 2019 when Ben Londo, the Cal Poly Rodeo coach, brought it to the attention of Tim Smith and Ryan Fiorio as a project he wanted them to build sometime in the near future. Ben wanted a deck to fill the void between his office trailer and the rodeo arena, approximately 20-feet. Ben has been working hard to improve the rodeo grounds since he came back to Cal Poly as the coach in 2013. He wanted to use the deck for fundraising events, a VIP viewing area and to place Soloshot cameras for practices. Soloshot cameras are wirelessly connected to participants and when activated, the cameras will follow the athlete and record the event for further review. Ben wants to install several of these cameras to record his student athletes and a TV inside the office trailer so they

can watch their previous run and see what they need to improve on. This will help further the success of the great Cal Poly Rodeo team.

In the fall, while Tim and I were deciding what senior project to build, we were reminded about the deck Ben desired that we could build. The goal was to give something back to Ben in return for the support and opportunities he has provided to us over the last several years. Ben has given us many projects to work on at the rodeo grounds and also at his ranch just outside of San Luis Obispo in Edna Valley. He also has had us help in the preparation of the massive Poly Royal Rodeo. All of these have been great ways for us to improve upon our construction and management skills. We brought the idea to Ben's attention and started our rough plan for the deck. Then we brought it to Phil Barlow, the Cal Poly senior project director, to ensure it was a sufficient project. We then spoke with Dan Knight about being our advisor. After getting it approved by him and Phil, work began on fundraising and planning this deck build.

Process

Like all senior projects, the first step was to come up with an idea and get it approved. Tim and I worked together to try and come up with a project we could do together as we enjoy working on construction projects as a team. We remembered the deck Ben Londo had mentioned to us and decided it would be a perfect solution. Once approved by Phil Barlow and Dan Knight, we began to work on a strategy that would allow us to break down the project between the two of us and ensure a successful build.

Tim and I worked with Ben Londo to get his customer requirements for the deck. We then met with Kyle Harris of Harris Architecture and Design to draw up a set of plans. The main goal was to have a very rigid and sturdy deck. It is about 1,200 square feet, so any cut corners or loose connections would be amplified, creating weak points. It also will be accommodating many people, food, and tables at fundraising events, so a wobbly deck wouldn't be acceptable.

Tim and I reviewed our schedule multiple times and adjusted it up until our start date to guarantee that it would be accurate and something we could effectively work off of. We thought through everything to make sure we would be able to complete it on schedule based on our abilities. This thoroughness was taught to us through our residential and commercial construction labs. Our schedule was pretty accurate except for a change order we experienced during the decking phase of our project. This change did add about two days to our schedule.

While working with Kyle on design, we also started working with Jessica Otten, the Director of Development for the College of Architecture and Environmental Design to come up with a fundraising strategy. At this point we had a rough order of magnitude (ROM) of \$20,000. Our estimate was worked out rigorously as we tried to avoid any possible mistakes and ensure that we covered all necessary items. Estimating is a skill we have worked on in all our labs here at Cal Poly. We were introduced to Ray Lad by Jessica, who helped design a flyer in email form to send out to all possible supporters. The flyers worked very well because they had lots of detail and clearly laid out the donor levels. A Facebook page was also created to help promote the project. Raising the money took longer than expected, and after Coronavirus started, the substantial donors that we had hoped for ended up donating smaller sums of money. Because of this situation, work started later than planned, but finally in May 2020, the building began.

The material was ordered from Weyrick Lumber in Templeton, just outside of Paso Robles California. We started with all the pressure treated lumber for the sub structure. We originally had planned purchase material from Hayward Lumber here locally, but they were a poor partner that did not seem interested in working with college students. That is when Tom Maino gave us Colin Weyrick's contact information and we were able to make the big improvement in using Weyrick as our supplier. The pony walls were built of 2x6 members with 5/8" anchors every 48" (Figures B and C). Because the slab was sloped for drainage, only the bottom plates with the studs run long were built to start. Then we used a laser to get the elevation of all the studs and cut them with a circular saw. Maino was very generous in lending us a rotary laser to perform this step. This gave us a level deck on top of a sloped slab. Once the double top plates were on, we ran the 2x8 joists on top of the walls (figure D). Maino also was very helpful here as they allowed us to use their extension lift so we were able boom in loads of joists from the arena side and easily place them on the walls. We double blocked the joists in line with the pony walls and for extra rigidity we used Simpson Strong-Tie H1 hurricane ties at each connection. Many of these framing techniques we learned in our Fundamentals of Construction lab and our Residential Construction lab.

With the joists in place, Tim and I started the decking, making two 20-foot by 16-foot picture frames on each end with a 20-foot by 20-foot square frame in the center. We used Camo brand hidden fasteners with joist clips to provide a sleek look. These clips are very helpful with the joist clips. This allows you to place them on the joist and then run the next board in tight and screw it in snugly. These clips also help in providing equal spacing on all the deck boards for a uniform look. During this part of the project, Tim and I were very fortunate to have our girlfriends come and help out. This greatly increased our productivity and we completed a substantial portion of it in a day and a half. When we went to deck the center section; however, we ran into an issue getting the boards to line up perfectly straight across the entire deck. That is when we decided, with the help of Ben, to do a diamond in the center with diagonals coming out. It did add significant time though as we had to substantially increase the blocking to accommodate the new direction of the deck boards (figures E, F, and G). Even with a time delay and extra work, I think this issue led to a great improvement in the deck and took it from a normal deck to a more complex, appealing one.

When the decking was completed, we then finished the handrails. The posts had previously been anchored to the concrete with Simpson Strong-Tie post bases while the walls were being built to ensure a stiff handrail. The railing is a simple one made up of pressure treated 2x4 stringers and a TimberTech cap to prevent splinters.

By this point, the deck was almost complete, all that was left was to skirt the perimeter. Kyle had called out 5/8" plywood for sheer strength, but we had it changed to 5/8" T-111 siding as it matches the trailer exterior. The T-111 provides a much more uniform look and still provides the added shear strength to the perimeter of the deck.

Once completed, we turned the deck over to Ben and the rodeo team to use as a viewing platform, for Soloshot cameras, and a great place for fundraising events. It has greatly improved the Cal Poly rodeo grounds and will serve the rodeo team significantly and help them to grow as a constant national contender.

Photos



Figure A – Existing slab



Figure B – Start of pony walls



Figure C – Pony walls built with cross bracing installed



Figure D – Joists run over pony walls



Figure E – Laying out new diamond pattern (courtesy Joe Johnston)

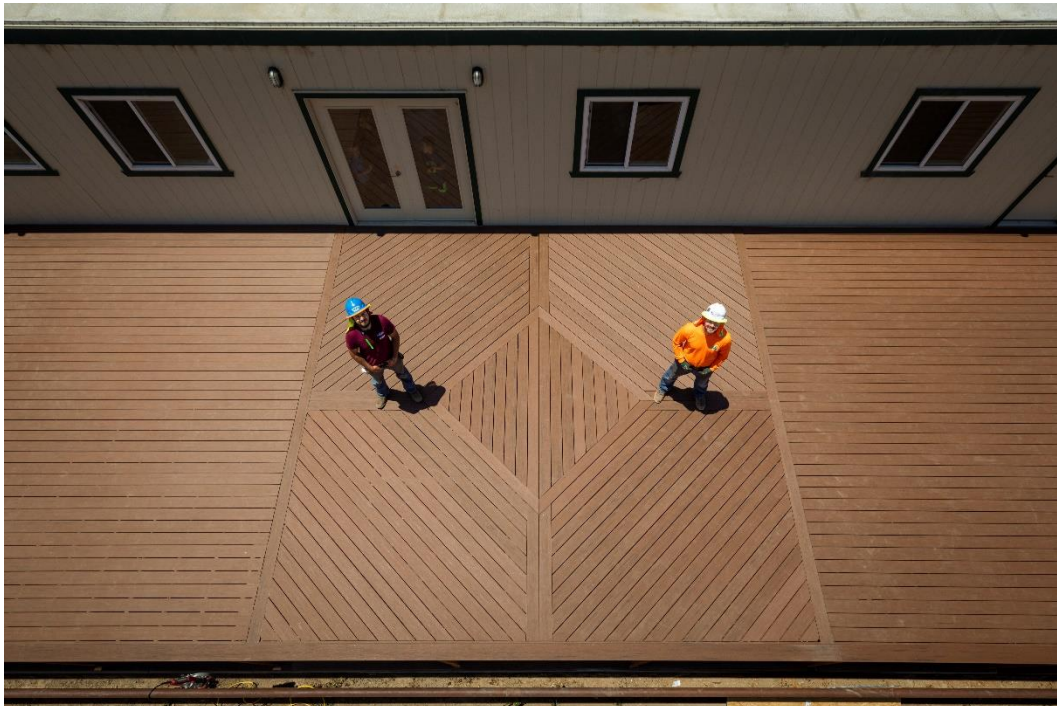


Figure F – Completed deck with Ryan Fiorio (left) and Tim Smith (right) (courtesy Joe Johnston)



Figure G – Completed deck picture (courtesy Joe Johnston)

Deliverables

- Original Budget (CM 335)
- Actual Expenses (CM 335 and CM413)
- Original Schedule (CM214)
- Actual Schedule (CM214 and CM413)
- Facebook Link –
https://www.facebook.com/CPRodeoDeck/?view_public_for=103373637936337
- Flyer (attached)
- List of Sponsors (attached)

Lessons Learned

We did have several struggles throughout this project, some our own faults and others just because of uncontrollable factors. The first was getting our fundraising off the ground; this set us back about two months. It also greatly affected the donation levels we received because of the Covid-19 pandemic. Tim and I should have pushed harder to get a fundraising link sooner and worked harder to get it set up in a more effective manner. If we would have been able to start fundraising earlier, we would have been able to receive more donations, and most likely larger donations. This also would have set us up to start building sooner, like we had originally planned. This slow down showed us the importance of staying on top of things so they do not spiral and end up pushing you way behind schedule.

Another issue we ran into was after we started running joists, we realized that we would not match up appropriately with all the door sills along the trailer. We believe this occurred because of minor errors that compounded, like the office trailer not being perfectly level, different door sills across the three doors, and minor imperfections in our deck. What we ended up doing was planing the joists in that area and blending it in to maintain less than a two percent slope per ADA requirements. This can be a somewhat common issue when building a deck and we now know to watch closer for it.

A different issue that we encountered was getting perfectly straight decking across the 54 feet of deck. This led to the change order of creating a diamond pattern in the center that added two days to our project. We had to add significant blocking to support our new angle of deck boards. After that I feel it created a much more pleasing aesthetic to the deck and really helped us push ourselves and our craftsmanship. This pattern is appealing, but because of the design it would be much better to plan ahead for it instead of adding blocking last minute to accommodate it.

A key overall lesson was planning ahead, especially for a large project like this one that you know will be pushing your abilities. Another big lesson learned is that things never go exactly as planned, so having a contingency plan in place. Adaptability and flexibility are important skills that can be brought into future projects.

Conclusion

This project overall was a major success, even with Covid-19 restrictions and many other obstacles, the students were able to persist and complete the project. Many lessons were learned during this project including planning, estimating, scheduling and complex constructability challenges. This was a large undertaking for the two of us as a senior project, but in the end, it was a rewarding experience that the students and many others will be able to enjoy for many years to come. Many thanks to all of our donors and the help of local business partners to complete this great addition to the Cal Poly Campus.

Flyer

Construction Management Students Tim Smith and Ryan Fiorio Leading Effort to Enhance Cal Poly's Rodeo Program

Dear Friend of Cal Poly,

We have designed a Rodeo Observation Deck for the Cal Poly Rodeo Program as a senior project through the [Construction Management \(CM\) Department](#). The project includes design, fundraising and construction. Our goal is to complete the deck by the end of the Spring Quarter. It will be used to host practice training, events and sponsors for next year's rodeo.

About the Deck Project:

Cal Poly Rodeo is one of the best collegiate rodeo teams in the nation and is coached by 2019 Coach of the Year and Cal Poly alumnus Ben Londo (CM, 2007). We have partnered with the coach and the rodeo program to conceive a much better way to view practice runs and to provide a platform in the practice arena to mount Soloshot cameras that automatically track a rider in motion to record the runs for later analysis and team improvements. Not only will this help students elevate their riding skills, but it is a fantastic way to further our Learn by Doing here at Cal Poly by building it for them.

Help Us Build:

Our next phase of this senior project is to raise support through family and industry partners to reach our goal of \$18,000 to build the deck and provide the rodeo team a quality asset that can be used for many years to come.

You can help us by choosing a donor level below, ideally by May 1, and by [clicking on this secure link](#) to Cal Poly's giving site. 100% of your gift is considered a charitable gift to the program.

With the contact information you provide, we will be in touch with future correspondence and special tickets for next year's rodeo based on your giving level.

For more information about this project and to view it as it progresses, please [click here to visit our Facebook page](#). We are looking forward to dedicating the deck at next year's Poly Royal Rodeo 2021.

Thank you for your support! Go Mustangs!

Tim Smith and **Ryan Fiorio**

Construction Management Class of 2020

College of Architecture and Environmental Design

Rodeo Observation Deck Support Levels:

\$100 - Saddled Up! Recognition in the support of our Cal Poly Rodeo and CM programs.

\$250 - Out of the Gate! Recognition in the support of our Cal Poly Rodeo and CM programs, and 2 tickets to the 2021 Poly Royal Rodeo in Spanos Stadium.

\$500 - Mustang Spirit! Recognition in the support of our Cal Poly Rodeo and CM programs, and 4 tickets to the 2021 Poly Royal Rodeo in Spanos Stadium.

\$1,000 - Ridin' High! Recognition in the support of our Cal Poly Rodeo and CM programs, 2 VIP tickets to the 2021 Poly Royal Rodeo in Spanos Stadium, a sign displayed in the stadium during the rodeo, and listing on the plaque as a project major donor.

\$2,500 - Winner's Circle! Recognition in the support of our Cal Poly Rodeo and CM programs, 4 VIP tickets to the 2021 Poly Royal Rodeo in Spanos Stadium, a sign displayed in the stadium during the rodeo, and listing on the center of the plaque as a project major sponsor.

List of Sponsors

- Berkeley Cement Inc.
- California Contract and Home
- Fiorio Farms Inc.
- Fiorio, Ann C.
- Granite Construction Inc.
- Kent, Larry S.
- McGuire and Hester
- Roberts Hardware
- Rosendin Electric Inc.
- The Don Chapin Company Inc.
- Nibbi Brothers
- Weyrick Lumber
- Maino Construction
- Harris Architecture and Design
- Cal Poly Rodeo Boosters
- Anonymous Donor