

# South Bay Fire Department: Back Deck

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Local fire station, station 15, in the community of Los Osos was in need of a deck to be built in the rear of the station. There was public support, funding, and a desire for an upgrade. With the help of the firefighters and admin staff at South Bay Fire Department, a 285 square foot structure was constructed to operate as a relaxing area for on duty staff to use between emergency calls. The plan creation, estimating, and building of the deck took approximately a year to complete. An estimated 305 man hours were spent collectively on the project, with great care given to the needs of the department and attention to detail. On June 11, 2016 the project was completed. The project took longer than scheduled and cost more than originally estimated.

**Key Words:** Fire Department, Deck, Schedule, Los Osos, Man Hours

## How Project Came About

South Bay Fire Department (SBFD), CALFIRE Station 15, services the local beach community of Los Osos, a town of approximately 14,276 residence. South Bay Fire Department has a single fire station that provides emergency services to the community which includes but is not limited too: fire, rescue, and emergency medical services. South Bay Fire Department had 1,440 calls for service in 2016 which leaves the staff with little time to perform large scale station improvement projects. The station was built years ago and has gone through a number of minor renovations since then. With the exception of a small horseshoe pit, the exterior usable space has been left relatively barren. For the last ten years there has been a desire to have a deck built in rear of the station for on-duty staff to use between calls.

The fire station is staffed with four on duty personnel – consisting of 1 CALFIRE Captain, 2 CALFIRE Engineers, and 1 South Bay Fire Department Reserve Firefighter. During larger incidents a company of 15 reserve firefighters can be called in to aid the on-duty crew. This results in the overall population of Station 15, to be rather large. In the lull's between calls the fire personnel focus on station cleaning, tool repair, and training. Yet, outside of normal business hours (typically 8-5) the crews also relax, cook, workout, and sleep. During the height of the fire season, individual fire personnel may be on-duty at station 15 for up to a month or longer. The need for the fire station to have relaxing spots is crucial during the long stints – which is what initiated the need for the deck.

## Project Process

The project went through three main phases: planning, estimating and scheduling, and building. The majority of time was spent in two phases – planning and building. With a total of about 305 man hours spent on the project, 200 man hours were spent on planning, and another 105 hours were spent on building.

### *Planning*

The first phase of the project was planning which included: discussing the vision of the project with South Bay Fire personnel, researching local building codes and regulations, researching existing conditions, creating building plans, and using a 3-D model to present to SBFD.

### *Vision*

The overall vision of the project was well established prior to the start of the project, and SBFD personnel had been considering the project for years prior. Very little was established about the specifics of the project – what size, what materials, general layout – but the overall idea was established. Short informal meetings were had with middle management of SBFD concerning the project and expectations were roughly laid out.

### *Building Codes and Regulations*

The building plans were created following local building codes and regulations. Per San Luis Obispo County Title 19 a deck under 300 square feet and below 30” doesn’t need a building permit. The building code is expected to be followed in un-permitted projects.

### *Existing Conditions*

The only existing conditions were a man made drainage swale that ended before the building site and a small horse shoe pit. Both exiting conditions didn’t interfere with the structure. The site was covered in vegetation.

### *Building Plans*

The majority of the planning phase was spent on the building plans. A 3-D model of the space was created using ArchiCAD and from there the overall design was drafted. After exploring multiple deck shapes, an octagonal shape as the second level with a square as the first level the specifics were selected. Before extensive schematics were drawn up, the overall design was shared with SBFD and received little critiques. A long process of creating specific plans followed, and a final draft was completed in early 2017.

### *Estimating and Scheduling*

A total of 10 hours were spent on the estimating and scheduling for the project. Using the building plans created, a materials take-off was performed and used to estimate the cost of the project. A total project cost of \$3,455 was estimated. A building schedule estimated approximately 80-90 hours of work to be done for the project to be built. The building schedule was broken up into typical main tasks and was assigned expected man hours for completion, any lead times for materials, and any other considerations for construction.

### *Building*

The building of the deck took approximately 105 man hours which included all the major aspects of the schedule, but also included material purchase and delivery.

### *Clear and Grub*

This step took approximately 7 man hours. 3 cubic yards of vegetation was removed from the site.

### *Excavation*

Excavation took approximately 15 man hours. Site excavation took around 3 hours to bring to an approximate level. Footer excavation took an additional 12 man hours. RFF Evers assisted with the excavation.

### *Formwork and Concrete*

Formwork and Concrete took approximately 19 man hours. Formwork was completed with 5 man hours of work. Concrete took the remaining 14 man hours to complete. RFF Evers and RFF Burt assisted.

### *Framing*

Framing took a total of 48 man hours to complete. This step included post, beam, joist and blocking construction. RFF Mobley and RFF Meert assisted.

### *Decking*

Decking took a total of 16 man hours to complete. RFF Mobley and RFF Hamblin assisted.

## **New Knowledge**

An integrated project delivery method was used to deliver a high quality project to a local fire station. The use of this project delivery method allowed the project to be delivered quickly, cheaply, and to be built well. The importance of the traditionally segregated planning and building portions being blended was emphasized in this project. Without the ability and knowledge from the planning of the building, construction would have taken much longer.

New technical building knowledge was learned from this project. The “down and dirty” steps to the whole project were further built upon, and a solid foundation of new knowledge was created for future projects. In specific areas that gained new knowledge were: plan creation, concrete formwork, layout, and framing. The topics were introduced through the construction management curriculum, but weren’t established until this project.

## **Deliverables**

The main deliverable is the physical deck that will be used by SBFD for years to come. Additionally, a full set of plans was delivered to SBFD for future reference and a price comparison between the cost estimate and actual cost along with all appropriate budgets was delivered.



*Figure 1: Main Deliverable*

## **Lessons Learned**

Time spent on layout, formwork, and leveling will lead to less time spent correcting issues later. There was one portion of the process that need to be re-done – the leveling of the posts. This was easily re-done with no additional cost, just a slight delay in project delivery.

### **Application**

Any new knowledge gained in this project won't change or alter the greater construction industry, yet it did effect my personal goals in the construction industry. This project, although rather small in relative scale, was the first project that I initiated, planned, estimated, scheduled, and built. This has given me the courage and knowhow to do similar and larger scale projects in the future.