The Shell House demo was recommended by the Associate Dean of CAED as a potential senior project for students. Built decades ago it had deteriorated over time. The purpose of this project was to clean up Poly Canyon Architecture Graveyard, making it a nice, safe place to visit. This project interested the author because it was something different and was geared more towards heavy civil. To get started, a permit had to be submitted to the CAL POLY building department. This process took longer than expected. The permit wasn’t released until an environmental impact test was conducted, resulting in asbestos being detected in the floor next to the structure. When the permit was approved, there were certain stipulations that needed to be followed. The student was told that he couldn’t work on the structure until steps were taken to cover and protect the surrounding floor containing asbestos. Another requirement was a definitive confirmation that the center column being removed from inside the structure, wasn’t structurally load bearing. This was a major concern of the author, since he couldn’t locate any blueprints or documents on the structure. Nobody could confirm the structure’s load bearing status, which was a stipulation of the permit. Eventually, the student made the decision not to continue with the demo project for safety reasons. However, he still planned out how the project should be completed and recommended the demolition of the entire structure as the best alternative.

**Keywords:** Demo, Poly Canyon, Structure, Shell House, Plans

---

**Project Background**

This project came about through the College of Architecture and Environmental Design Department. During his Construction Management 460 class, they had several guest speakers come in to talk to the class about types of previous projects that had been accomplished or were currently being done. Kevin Dong, the Associate Dean of the CAED department, was one of the people that ended up coming to talk to them. Kevin mentioned to everyone about the possibility to work on joint projects with other majors, and if interested, to come and talk to him. The ‘soon to be graduate’ thought that that might be the path for him, since the opportunity was available and he really wanted to do an actual building project. He ended up talking to Kevin and Kevin showed him a few projects he sort of liked, but he ended up zoning-in on the demolition project idea. The demolition project was definitely not one of the easiest projects to choose to pursue, but it seemed unique to him. Equally, he really wanted to take it on because it was going to be a challenge. Unfortunately, demolition is something that the Construction Management curriculum skims over and does not go that deep into. Additionally, going into heavy civil after college, he thought this was a good opportunity to get his hands dirty in his future field. For this project, the student talked to Kevin a few times to find out exactly what was expected from him and what was to be done. He wanted to make sure he was completing this project correctly and concisely. Beforehand, he went out to the project site to take some measurements and to see the accessibility of the site, for both himself and for the equipment. Next, he wrote up a safety plan that outlined all of the possible problems that could potentially occur due, based on what he saw from his visits. He devised plans on ways to mitigate the outcomes, such as: the closest hospitals to the location, having a water truck on site and having a designated spotter. He also spent a few months researching how to take down concrete and other types of structures. In addition, the student contacted numerous equipment rental companies to find the prices of the
equipment that might be utilized. He needed to update and continuously revise his quotes, due to the scope of the work being changed during this time. He had already turned in his building permit to CalPoly and was waiting for it to be approved. This took over 3 months to get processed and given back to him. He did not actually receive it back until the weekend before he was to begin demo.

**Demo Process**

For this project, the demo, meaning the actual destroying of the center column, was scheduled to take 6-7 days. This can be seen in the picture that lays out the demo for each day. Before the demo begins, there will be 2-3 days of prep work that will happen. Preparation work includes setting up a fence around the project to keep people out of the area, to make sure someone does not randomly walk into the jobsite, and potentially encounter falling debris. During this process, a laydown area for all the equipment and resting area will be made. Signage will also be put up, letting those passing by to be aware what is happening and to stay clear. Lastly, the parts of the building such as toilets, cabinets, etc., will be taken out once a final check has taken place to make sure all of the utilities to the structure are off and disconnected. After all that has been taken care of, the demo portion of the project can commence. For safety purposes, demolition will happen in a top-down and out procedure. This means the demolition will start at the top or highest point of the structure and work down and out at the same time, which can be seen in the picture.

Figure 1: Demo plan, showing sections of structure being demoed each day
The project will be more time consuming in the beginning due to the demolition person needing to be on a raised platform. Being at such high levels can cause greater risks, especially at the beginning of the demo, as there is the potential for objects to drop and unintentionally hit someone, causing injuries. As one works their way down the column, the amount of demo work per day will increase even though it looks like it may be less due to the base being larger than the rest of the structure in the attached color demo plan. For the first few days, a lift will be used to help reach the high parts of the structure as well as provide protection and a stable working area to demo from. The most difficult day will be when the rebar has to be cut, separating the internal and external structures. The difficulty would be because there is no laid out plan for this structure which means you are in essence knocking it down blindly. It would be a risk as to whether the entire structure would collapse. Without any building plans or any definitive insight about the structure it was almost impossible to determine how the center column and the outer shell were connected. As the student gathered information about his demo project, he continued to receive conflicting information regarding the viability of removing the center column. Therefore, he decided to stop pursuing the demolition of this project. However, if one was to continue and successfully demo the column without incident, then the rest of the demolition project should (in theory) be able to continue as planned. After each day, all of the scrap and debris will either be put in a pile in the laydown yard or dumped into the dumpster. If the material is put in the laydown yard, then on the last day or the day after the demo is completed, the material will be trucked down to the dumpsters and unloaded. After the debris is all cleaned up, the last task to do will be to make sure there are no pipes or dangerous materials left from the structure. Pipes and pieces of metal sticking out of the ground will need to be grinded down and covered to keep people from tripping or falling on anything dangerous.

Figure 2: Site map
Deliverables

During this project, the student had to submit a building permit request to the CalPoly Building Department, stating what the project was and the expected duration. He expected this to take a long time, so he turned his permit in early but it still took over 3 months to get it passed. Yet, when he got the permit back, he had certain things that he was required to do before the demo. One of his requirements was to get trained in silica and lead removal. He took the necessary online courses to be properly trained in silica and lead because those substances had been found in the structure and the training was a way to cover everyone’s bases. The other item that was found was asbestos. However, a professional would then be required to come out to deal with the removal. Students and teachers are not allowed to deal with asbestos removal. If an individual wanted to proceed, they would need to use a professionally trained outside contractor. That is where some of the problems began that eventually halted the demo project. Another requirement of the permit was a confirmation to the inspector from the CAED department that the center column was not a load-bearing column for the whole structure. This was not specifically stated in any drawings or blueprints on previous papers of the project since no such papers could be located on file anywhere. All he received from the department was that the center column was “not required” for structural support when it was built, however that still was not a definite and clear confirmation of the buildings’ status at the present time. Lastly, the student needed a sign-off from the utilities company saying that the utilities were disconnected and no power was still running into the buildings. Not all of these tasks required by others were completed by the time the student was planning to begin demolition, therefore he decided it best to cancel the project. He actually pushed back the start date twice, since the permit was not processed by the time he initially planned on starting. Thus, he was forced to start in August instead of during the spring quarter.

Student Suggestion

The student would suggest the demo of the whole structure, not just the center column. This way, the demo would be safer for all parties and would be easier as well. He would recommend a 30000-45000 pound excavator with the thumb attachment to help take down the structure. This would be a quicker process that would take about three days. If the dumpster was not able to be put in the laydown yard, he would suggest a 3-4 cy front loader for a day in order to shuttle the material down to the dumpsters. This type of demo would be more costly, but would not be as dangerous. And, to boot, it would be more enjoyable to operate.
Asbestos, the black tar looking stuff, found on the concrete next to the structure.

Figure 3: Route to work site from Village Dr

Figure 4: Asbestos, the black tar looking stuff, found on the concrete next to the structure

Figure 5: Center column of the structure where the rebar/ metal poles connect the two parts together
Figure 6: The only entrance to the structure for equipment with dimensions shown.

Figure 7: overhead shot of the site-fencing layout for structure.

Figure 8: site fencing being installed before demo should occur.