We wanted to develop a design that is efficient, but not to the extent where it would be impossible to construct. This is precisely what molds and differentiates our design of the Flores Branch Public Library. Because the library will have natural lighting, it will not only contribute positively to the environment, but it will also save money. Furthermore, technology is constantly developing at a fast pace. One example is that people are putting paper books down and instead downloading books electronically. Likewise, education is becoming more and more electronic. The library supports these advances, as it allows for its visitors to engage in technology based activities and utilize equipment needed to work efficiently today. Also, the landscape surrounding the building previously was dying quickly in the intense Houston summer heat. We decided to save all the trees that surrounded the building and transport them inside our atrium, where they could be maintained properly, while still giving an effect of beauty to our building. Additionally, it seems these days that we have a Starbucks in all of our facilities, such as Target and Barnes & Noble. We wanted our library to offer a caffeine source as well. We felt that a partnership with Starbucks could contribute to our library’s sense of comfort, while maintaining an overall library atmosphere. Finally, our library promotes education by providing classes for all: an innovative children’s room, individual study desks, a computer area, and group study rooms, among others. We created a place where students and the greater community can take part in various provided classes, utilize study rooms, and enjoy the glorious setting.

The new, renovated Flores Branch Public Library was redesigned to grab certain people. While adapting to current innovations and technology, our library wanted to attract even those who do not like to read books. With its beauty obtained by the stream, or “visionarium” as we call it, and the massive window wall, our revolutionary design calls patrons in to the welcoming space. The library provides a sense of relaxation with a cup of coffee from the coffee shop, to a group study with friends in one of the innovative study rooms. There is a school nearby that is within walking distance, providing students a convenient location for studying. Since a great deal of transportation infrastructure is being built in the Houston area, easy access is available through the light rail train and buses. When stepping inside the old Flores Branch Library, it was a noticeably dim space with few windows, which required the building to use a lot of electricity for lighting during the day. As engineers, we know that it is crucial to make a building as sustainable as possible, so we replaced the walls with large window walls to take advantage of natural lighting. This is an energy efficient solution that promotes ecologically initiatives. Also, building materials that were demolished are allocated back into the new parts of the building, which creates less debris from construction and prevents us from having to spend more money on new materials. The Flores Branch Public Library now contains a rainwater harvesting system that accumulates rainfall for irrigation purposes. This library is an affordable solution that is also appealing to the public and surrounding community.
Flores Branch Public Library

The design team will receive notice to proceed in August of 2014 and will have three months to complete their design. Construction will begin in December of 2014, with plans to finish in May of 2015.

Design and Construction Schedule

We located the existing utilities available at our site and made sure that they are sufficient for any increases in demand.

Civil Engineering

We reused existing columns that fit with our new floor plan. It was important to work with the architect to determine the locations of all columns. We placed new columns considering spacing and how the loads were transferred from beams to girders to columns.

Storm Water

Water Line

Wastewater

Water Line

Construction Site Layout

The phrase “everyone wins” has evolved to be a cliché. This design competition, however, truly portrays an event in which all participants win. The design competition has given our group the privilege of learning new ideas and skills. We learned that a lot goes into a project, including structural engineering, civil engineering, cost estimating, architectural layout, interior design, and many others. For example, one of our first steps was to develop precise floor plans. We were introduced to Sketchup and learned the program well enough to develop renderings of our project. This will be a really useful tool, especially as we seek to enter the engineering field. We learned what utilities were and why they are important for civil engineers to study. While it was important for our library to look nice, we knew that it also needed to stay standing, so we learned about framing plans and why we need beams and columns. Finally, we learned how expensive it can be to design and construct a building. Everything costs money, and we had to be very careful when making decisions. ACE gave us the opportunity to apply knowledge in a real world situation, something that a classroom setting lacks.

Structural Framing Plans

The total construction budget for our project is $3.5 million. This includes considerations for new structure, interior design, building cladding, and updated mechanical, electrical, and plumbing. We were able to cut costs by reusing building materials from the existing library.

Cost Estimate