

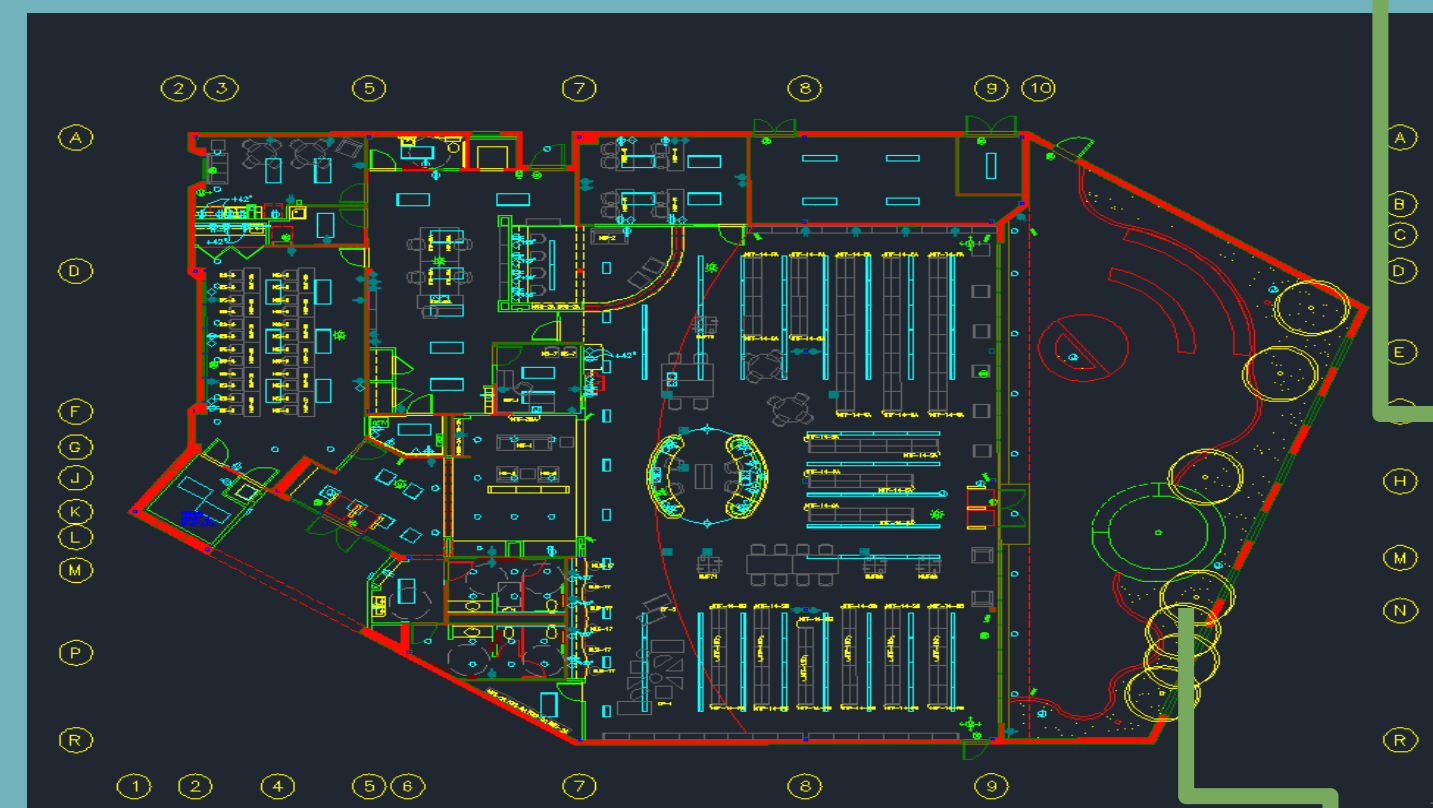
Existing Conditions



Main Entrance



Current Parking

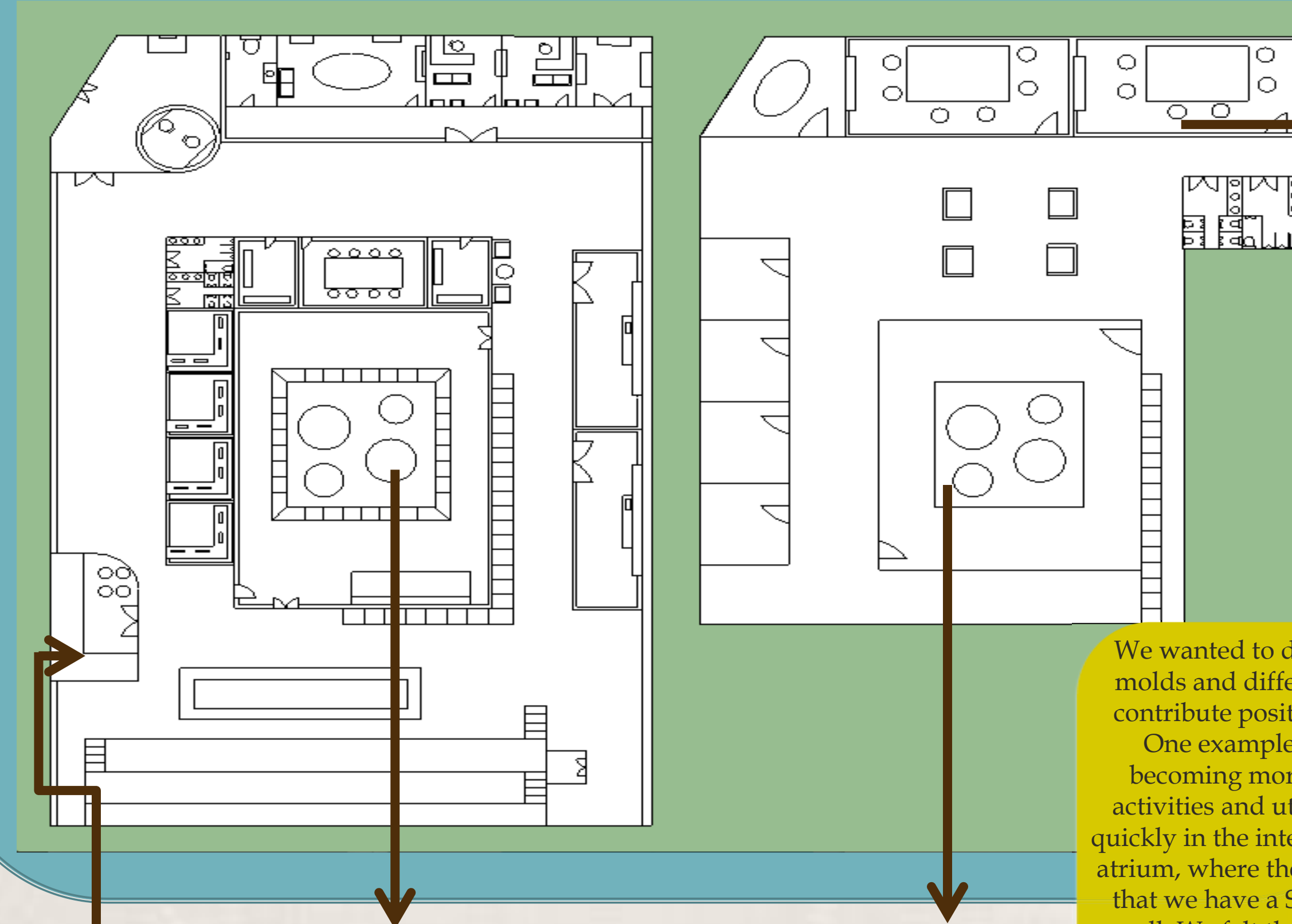


Current Architectural Floor Plan

Patio: One negative feature of the existing floor plan is the patio. It is surrounded by a tall wall with no view to the outside. This area is also off limit to the public, so it is not a usable space.

Flores Branch Public Library

Architectural Floor Plan



Coffee Shop

Patio: To make the patio a more usable space, we brought it into the interior of the building, creating a safe area for people to read, study, and relax in peace.

Group Study Rooms



Interior Design



Stairs Wrap Around Atrium Opening

Chairs in Coffee Shop



Reading Chairs



Bookshelves

We wanted the interior space to be open and welcoming to everyone, including children and adults. There are spaces for reading comfortably, studying along, working with a group, or relaxing with a cup of coffee. Our children's play area is isolated, so they can play without disturbing others and parents can leave their children in a safe place.



Children's Area



Personal Study Desks

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.

When deciding on the design project we chose to do for the competition, we encountered many complications. While we were immediately drawn to the Library Revitalization Challenge, it was difficult to choose which library to renovate. We initially chose the Houston Downtown Library, as we thought the exterior conditions were outdated and unattractive. When we looked at the inside, we found it to be up-to-date architecturally and technologically. We then took a look further inside our community. That is when we realized that our team's own public library near our school, the Flores Branch Public Library, was in need of a renovation, so we finalized our decision. Floor plans were difficult for the team, as we went through multiple designs and ideas to take into consideration. We finally decided on the shape, type of rooms, and the placement of what would go where. It was a difficult decision for the team to add a second story or not.

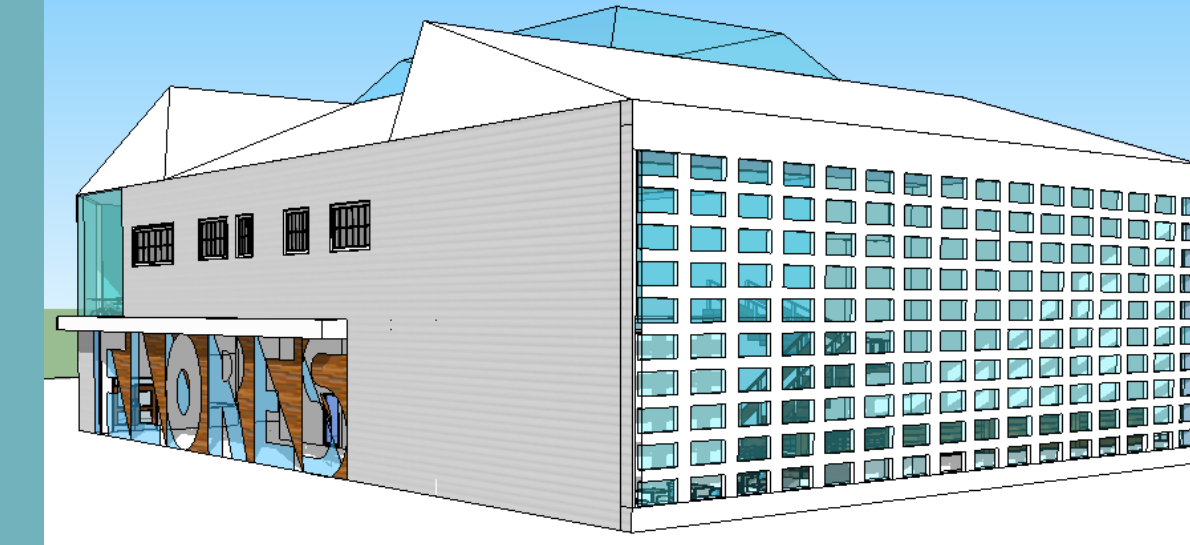
We reviewed the pros and cons of the situation and realized that the pros outweighed the cons, mainly because we could not expand outwards; we could only expand upwards. The most challenging part of the project for our team was sustainability. We wanted to make our library as efficient as possible, so that we can provide an ecofriendly option for the surrounding community. Each team member contributed to this brainstorming process by suggesting solutions like implementing natural lighting and reusing existing materials in the new building. All ideas were taken into consideration and each was thought about carefully. Many smaller difficulties came across our agenda throughout the process, but we were able to solve them all by putting our heads together as a team.

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 atrium, 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 ecofriendly 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.

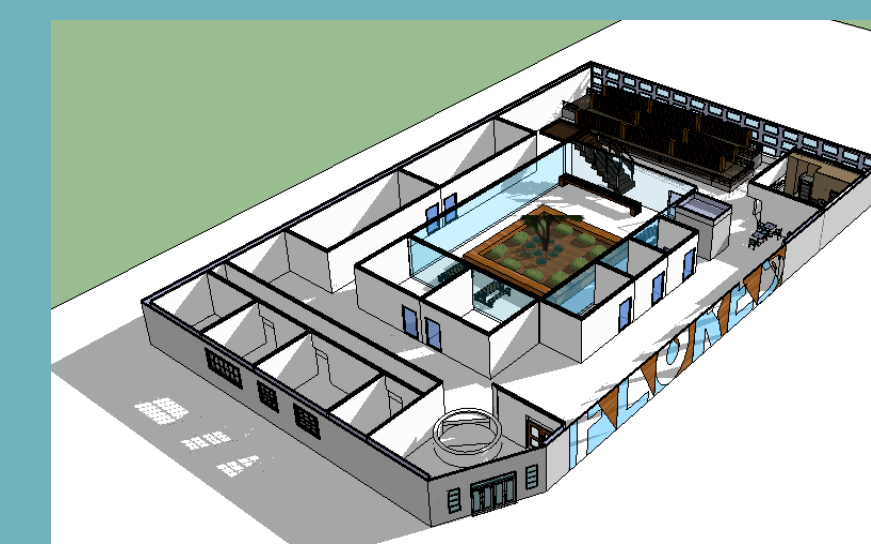
Exterior Views



Interior Patio



Window Wall



Main Entrance

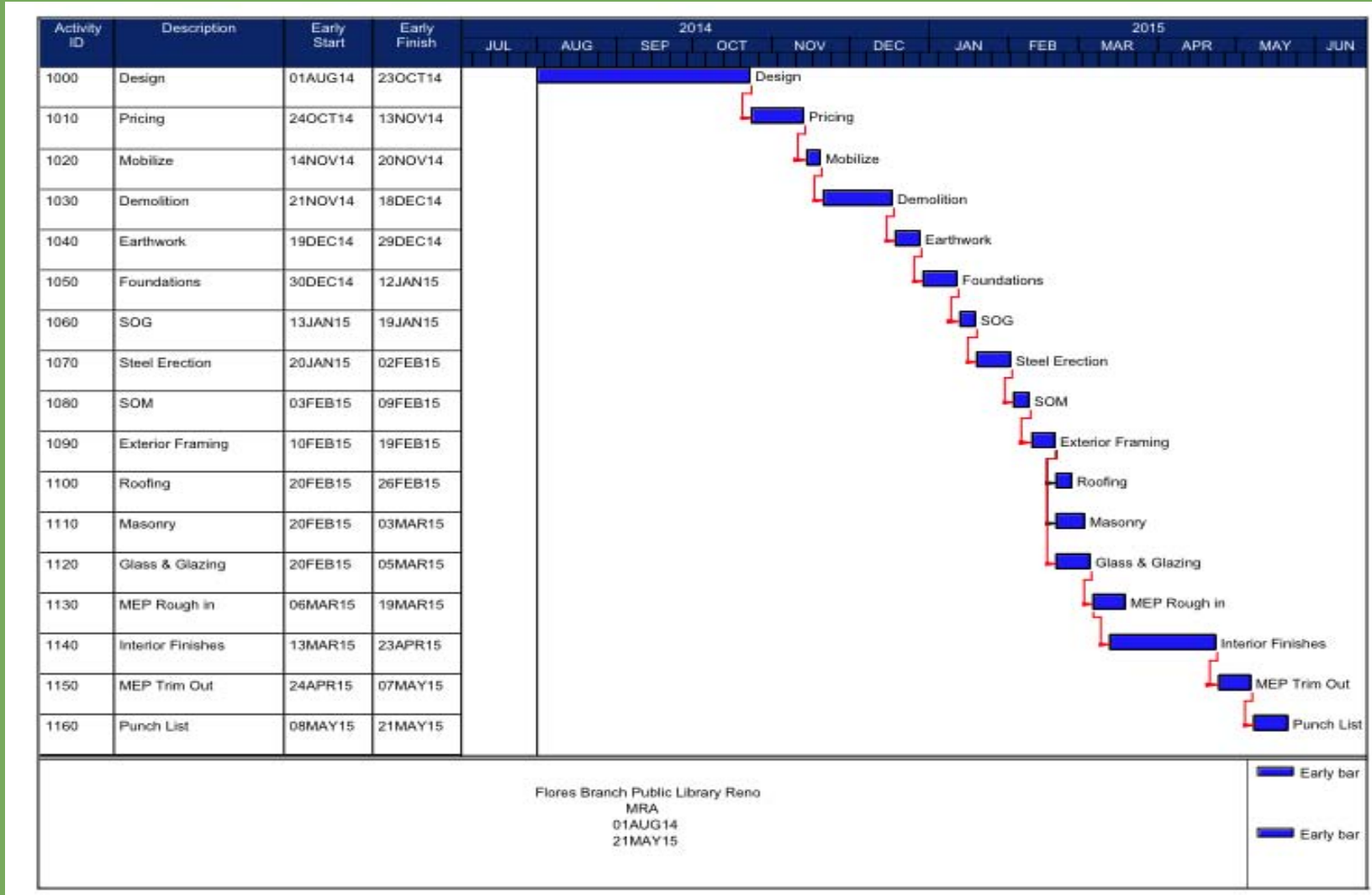
Demolition Plan

- Method: Controlled deconstruction with excavator and shears
- Plan will include safety methods for workers
- Reuse construction materials that are in acceptable conditions



Flores Branch Public Library

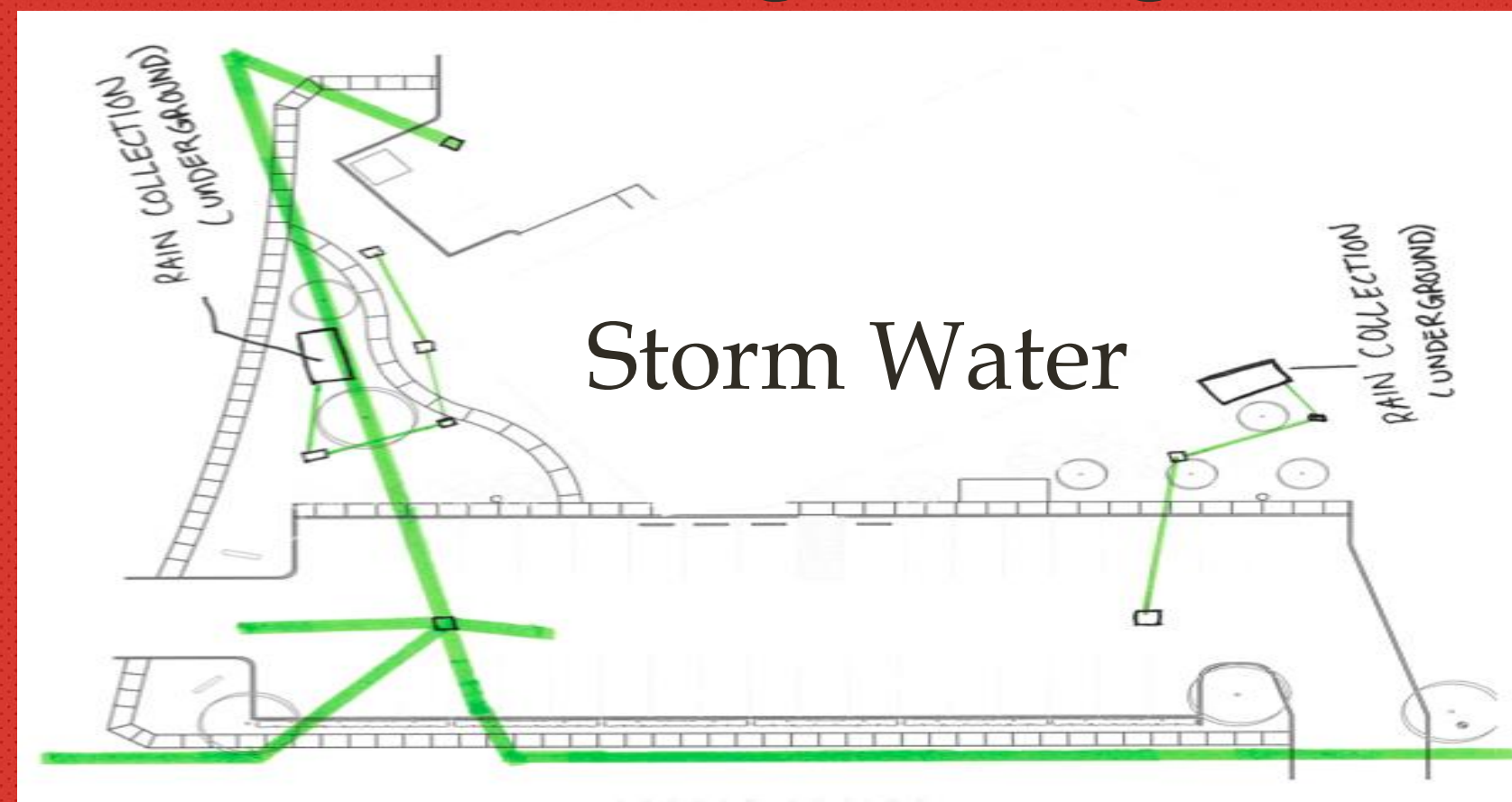
Design and Construction Schedule



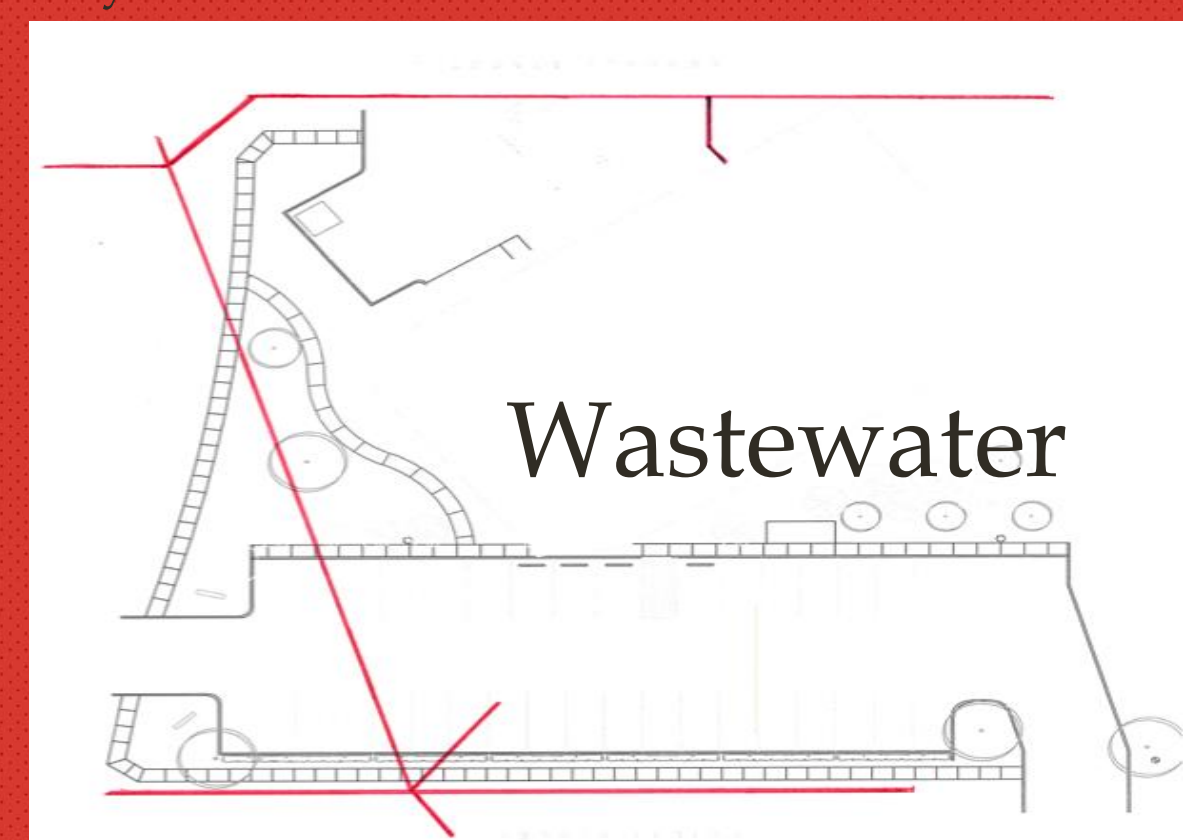
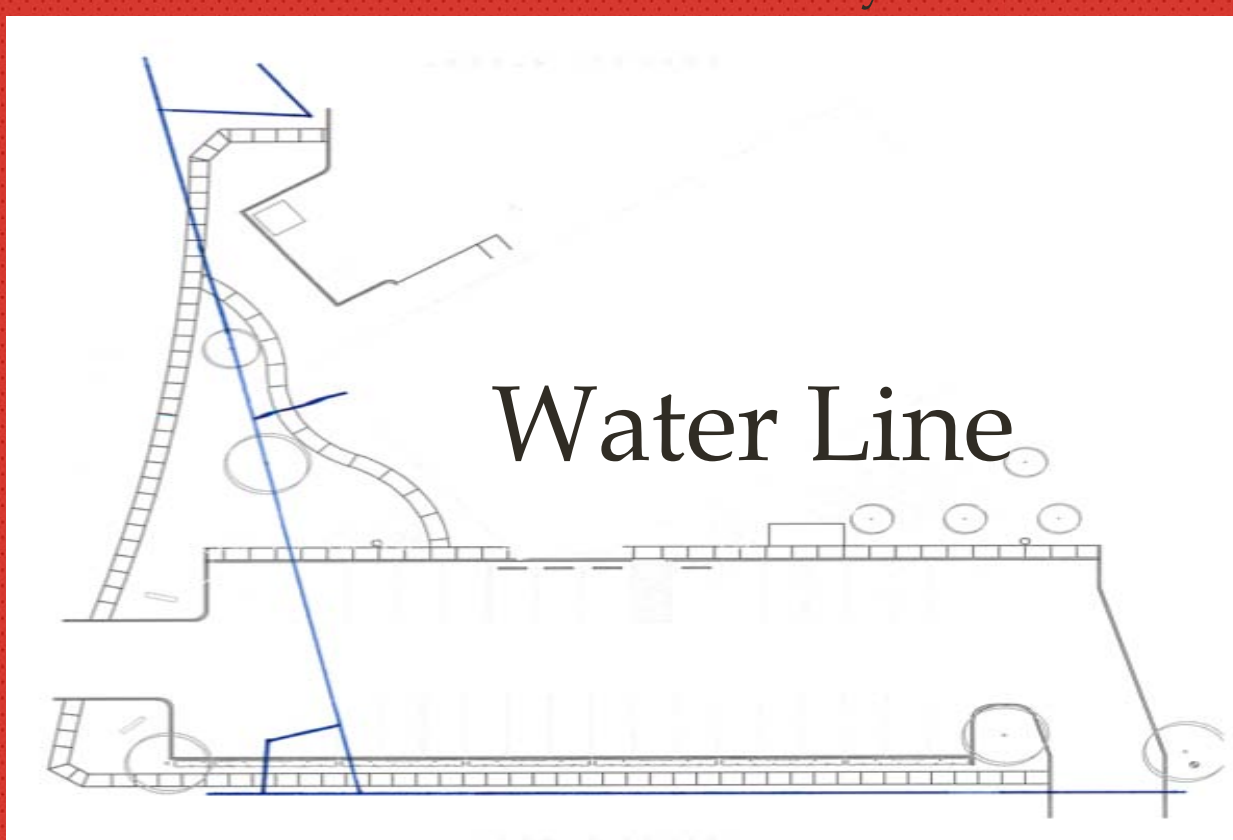
The design team will receive notice to proceed in August of 2014 and will have three months to complete their design. Construction will begin in December of 2014, with plans to finish in May of 2015.

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.

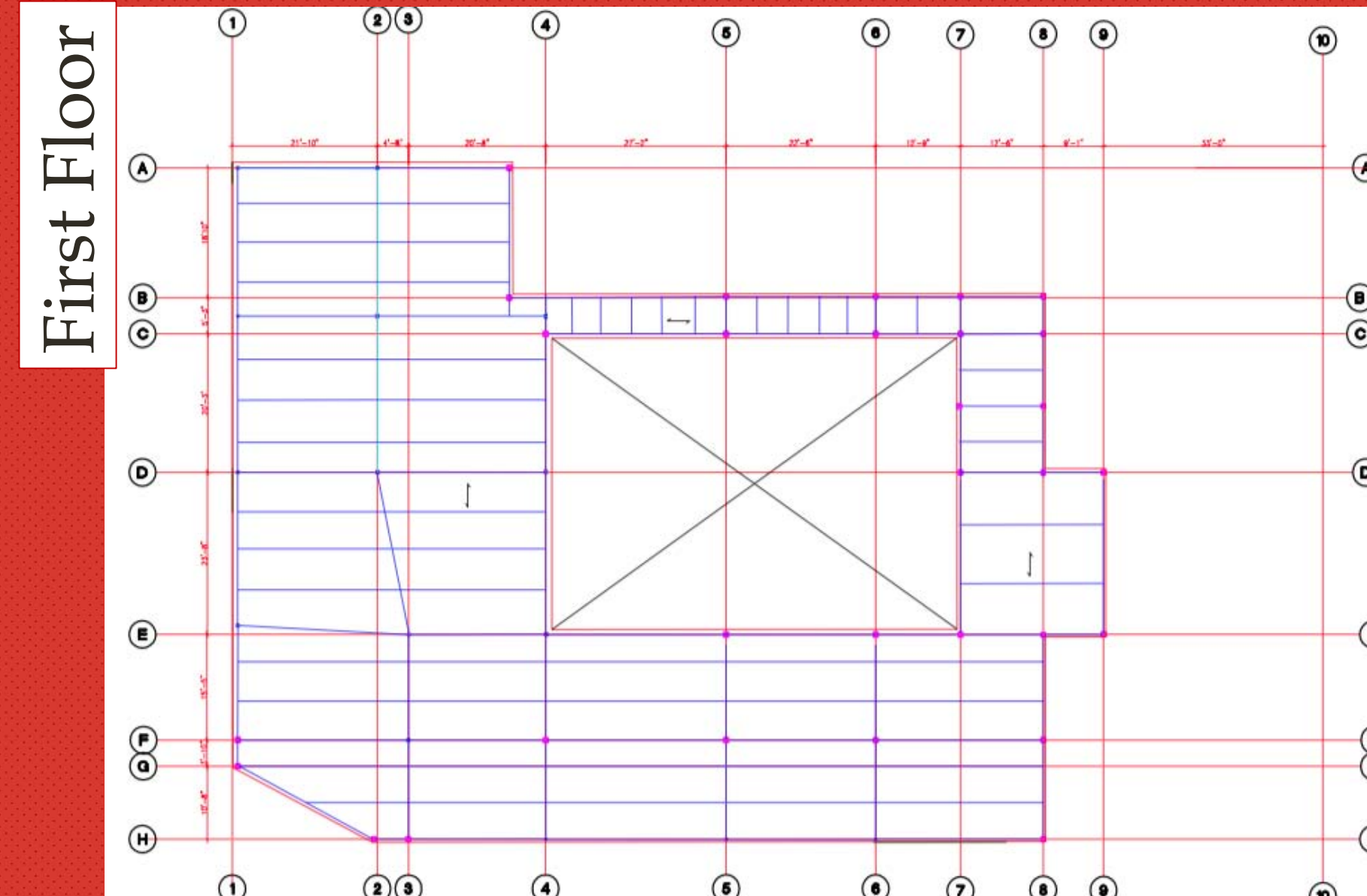
Civil Engineering



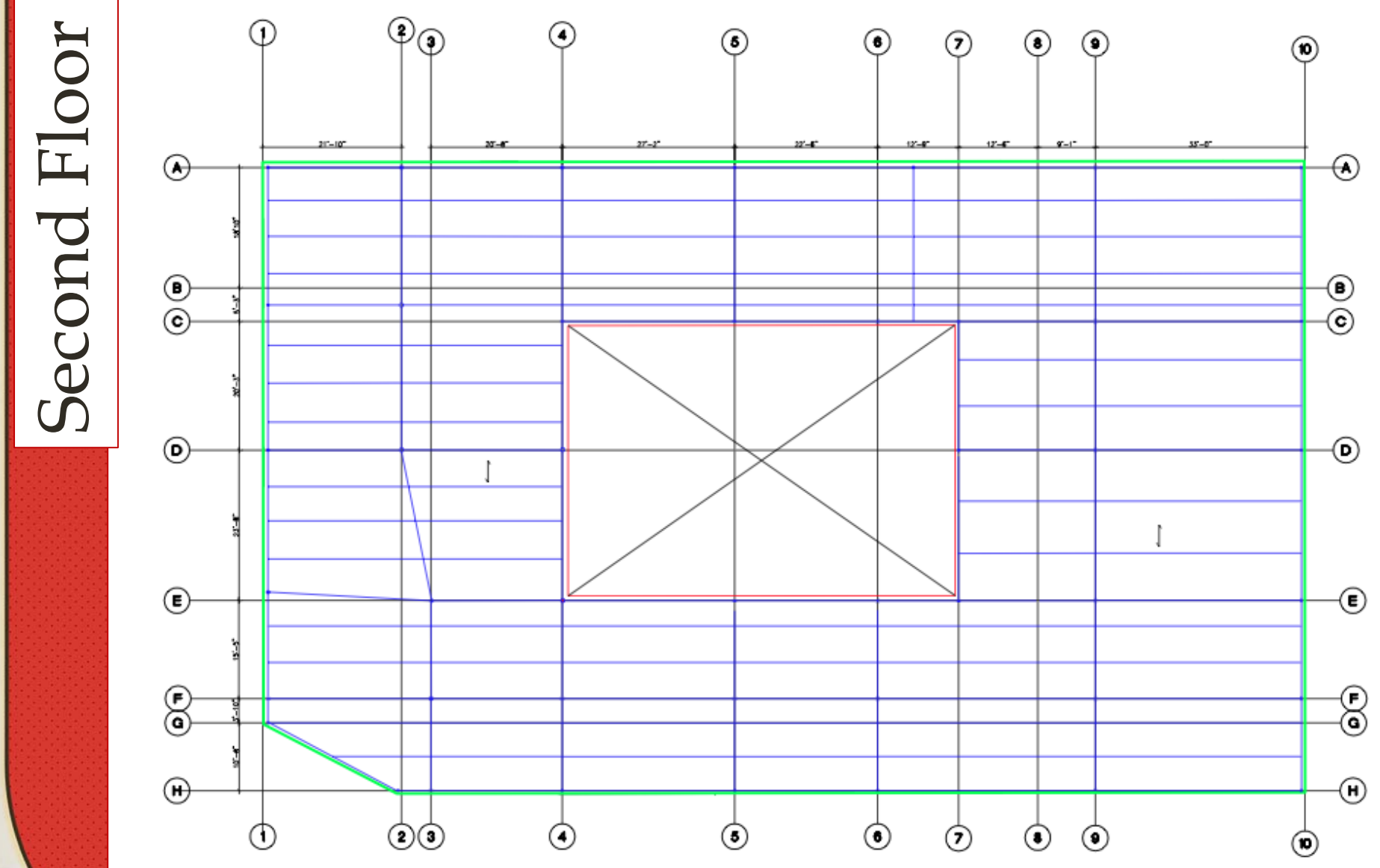
We located the existing utilities available at our site and made sure that they are sufficient for any increases in demand.



Structural Framing Plans



We reused existing columns that fit with our new floor plan. It was important to work 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.

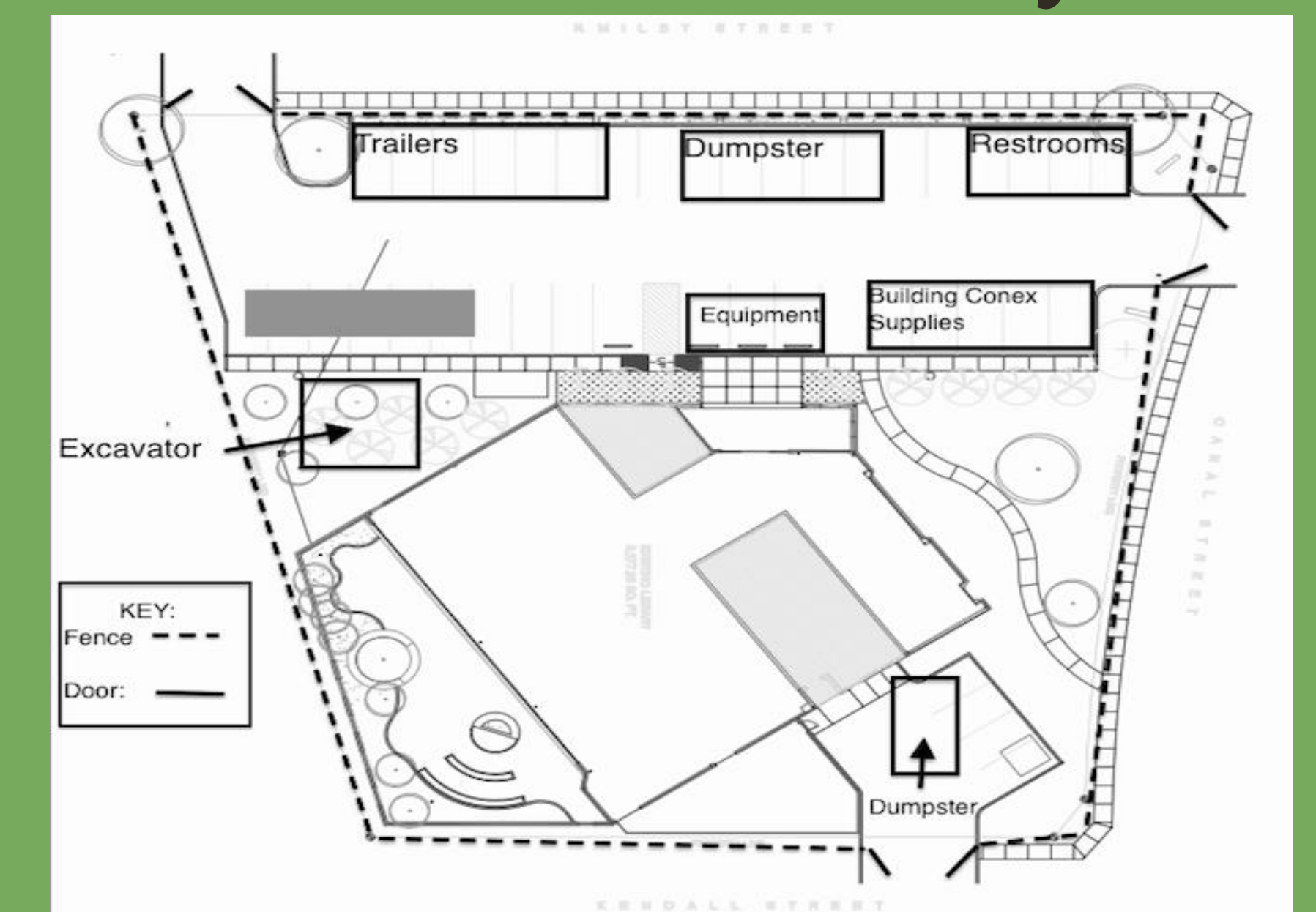


Cost Estimate

BUILDING BUDGET SUMMARY					
Div #	Description	Conceptual Budget Detail	Conceptual Budget	Budget Detail per Unit	Budget per Unit
1	General Requirements		380,000		15.00
1.1	General Conditions	150,000		5.77	
1.3	Design Fees	240,000		9.23	
2	Site Development		103,760		3.99
2.01	Layout & Engineering	7,500		0.29	
2.02	Site Demolition	35,000		1.35	
2.05	Erosion Control	3,000		0.12	
2.13	Curbs & Gutters	5,000		0.19	
2.18	Unit Pavers	9,600		0.37	
2.19	Landscape & Irrigation	40,000		1.54	
2.22	Site Furnishings	3,600		0.14	
2.25	Demolition	32,000		1.23	
3	Concrete		84,500		3.25
3.2	Conventional Foundations	12,000		0.46	
3.3	Slabs On Grade	37,500		1.44	
3.4	Slabs On Metal	35,000		1.35	
4	Masonry		42,000		1.62
4.2	Masonry Veneer	42,000		1.62	
5	Metals		506,350		19.48
5.1	Structural Steel System	494,000		19.00	
5.2	Miscellaneous Metals	12,350		0.48	
6	Woods & Plastics		87,000		3.35
6.1	Rough Carpentry	12,000		0.46	
6.2	Finish Carpentry	75,000		2.88	
7	Thermal & Moisture Protection		421,000		16.19
7.1	Roofing Systems	364,000		14.00	
7.2	Waterproofing / Damproofing / Caulking	12,000		0.46	
7.4	Flashing	45,000		1.73	
8	Doors & Windows		45,000		1.73
8.1	Doors & Hardware	45,000		1.73	
9	Finishes		609,250		23.43
9.1	Exterior Metal Studs & Sheathing	54,000		2.08	
9.2	Interior Drywall	130,000		5.00	
9.4	Acoustical Ceiling Systems	156,000		6.00	
9.5	Soft Tile / Carpet / Wood	146,250		5.63	
9.6	Hard Tile	78,000		3.00	
9.7	Painting & Wall Coverings	45,000		1.73	
10	Specialties		160,000		6.15
10.1	Miscellaneous Specialties	160,000		6.15	
14	Conveying Systems		35,000		1.35
14.1	Conveying Systems	35,000		1.35	
15	Mechanical		276,062		10.62
15.1	HVAC Systems	146,062		5.62	
15.2	Plumbing Systems	78,000		3.00	
15.3	Fire Protection	52,000		2.00	
16	Electrical		338,000		13.00
16.1	Electrical Systems	338,000		13.00	
	Subtotal	3,129,922			
	Permits, Bonds, License, Insurance	34,429	34,429	1.32	1.32
	Contingency	156,496	156,496	6.02	6.02
	General Contractor's Fee	156,496	156,496	6.02	6.02
	BUILDING TOTAL:		3,477,343		133.74

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.

Construction Site Layout



We planned out our construction site to make sure we have enough room to complete construction on schedule.