

## **Client Information**

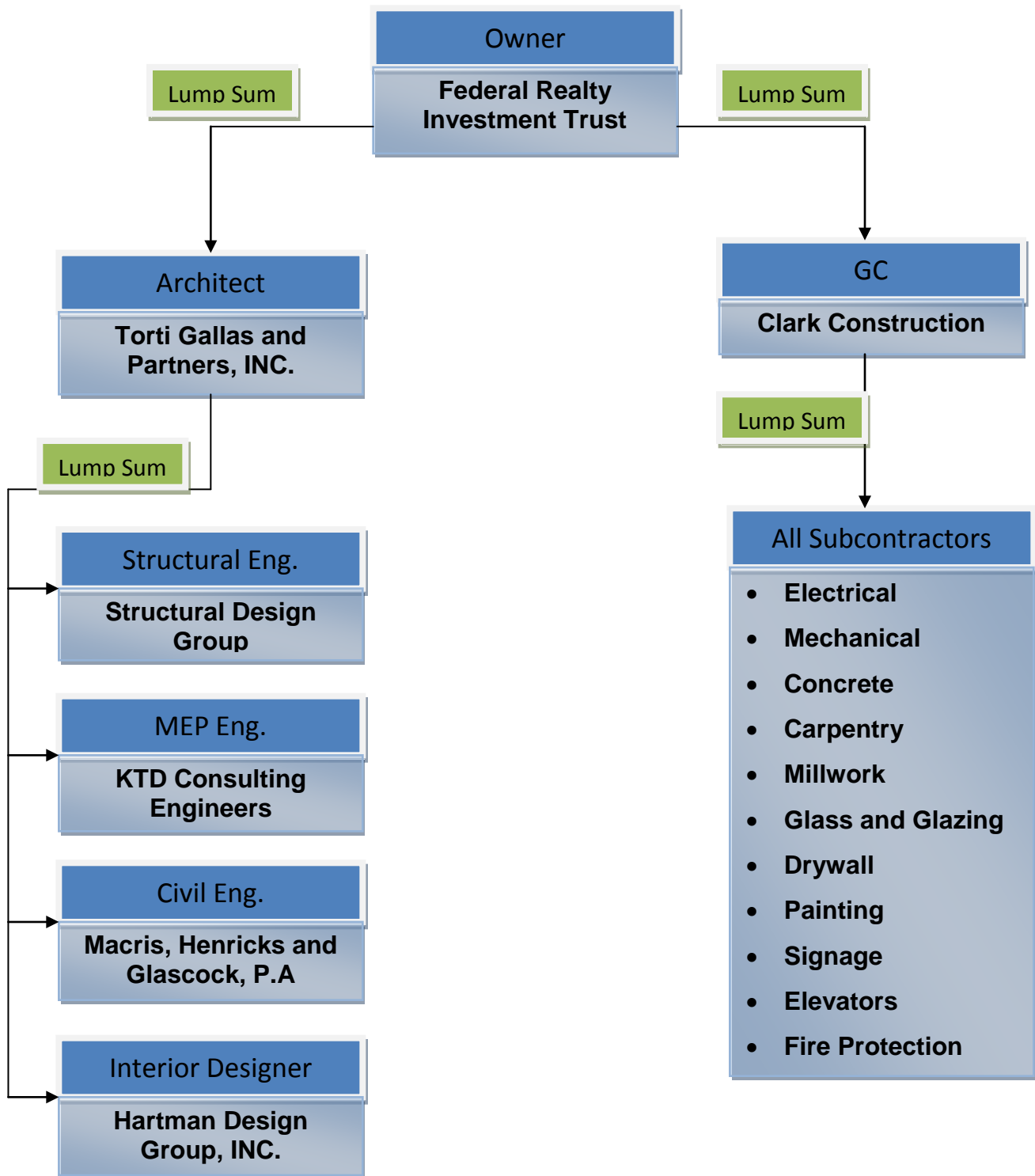
Federal Realty Investment Trust is an equity real estate investment trust specializing in the ownership, management, development, and redevelopment of high quality retail assets. Federal Realty's portfolio contains approximately 19.5 million square feet located primarily in strategic metropolitan markets in the Northeast, Mid-Atlantic, and California. Federal Realty is building the Apartment Complex project in Bethesda because is one of the growing areas in the DC area. Bethesda is actually one of the most expensive places to live in DC. Build in Bethesda is very profitable. The market is very large and the demand is increasing every day. Federal Realty is a very experienced company, and they know that a well done project in Bethesda will certainly be a very profitable project.

Since Federal Realty is a very experienced company and they know how the construction process works, they know that there will always be changes in every project. They know that change orders are part of the construction process. There is a \$450,000 contingency that they expect to take care of any unexpected changes. Federal Realty expects the project to be completed in a high quality manner, within budget and on schedule. Construction is scheduled to be 30 months in duration, with a substantial completion on April 11, 2008.

Federal Realty also expects the project to be completed in a safe way. Completing the project without any accident is one of the main goals for this project. Federal Realty as well as Clark construction, who is actually performing the job, think that a project with accidents cannot be considered a successful project. Measures have been taken to ensure the safety for everyone during and after the project is completed. OSHA guidelines are expected to be followed during construction for the safety of every worker. Fencing, traffic control, temporary lighting, access control, security monitoring, and life safety protection such as fire alarms and fire suppression systems, are some of the items that were incorporated during construction to assure the safety of every employee.

Federal Realty gave Clark the responsibility to complete the project. The sequencing of the project is up to Clark. The owner just cares about the final product. If the project is completed on time, within budget and with the expected quality, then the owner will be satisfied.

# Project Delivery Method



The delivery method that is being used on this project is design-bid-build. The owner hired design professionals to prepare a complete set of contract document, which includes plans and specifications, for a set price. The owner paid the designers a fixed price, called lump sum, to complete the project plans and specifications. Once the contract documents were complete and given to the owner, then the owner hired a GC. Clark Construction was hired by the owner to manage the project. The owner negotiated with Clark the contract, and they agreed on a lump sum type of contract. The owner will pay Clark \$50,047,750 to complete the entire project. However, Clark will have to manage all of the subcontractor's contracts. The owner only has a contract with Clark.

Once Clark was awarded the project, they had to hire every subcontractor for every trade. Clark bid the project, and a different contractor was selected for every trade. As in most of the projects, the lowest bidder was selected. Clark then needed to negotiate the contract with every subcontractor. The contract type used for all the subcontractors was a lump sum contract. The cost of the work for every trade was set before any work began. Moreover, every subcontractor needed insurance and bonds before starting any activity.

When an owner is not very experienced with the construction process, the best thing to do is to hire someone else to manage the entire project. Design-bid-build is a delivery method that allows the owner to allocate responsibilities and risks to others. The GC and the designers have all the responsibilities. Moreover, design-bid-build is the most common and best known delivery method. The down side of this delivery method is that the GC enters the project once the design of the building is completed. The GC has no input on design. Statistics have shown that projects tend to run smoother when the contractor has input on the design of the building.

When selecting design-bid-build, the preferred contract types for designers and subcontractors are lump sum contracts. For the GC was used a lump sum type of contract as well. The lump sum contract motivates the GC to do a better job because if they complete the project for less than the contract amount, then they get to keep the money saved.

## **Local Conditions**

In 1899, Congress passed a law that limited buildings to the height of the Capitol. That law is still effective today. For this reason most buildings in the area are designed as cast-in-place concrete rather than with a structural steel frame. The floor-to-floor height that can be achieved with concrete is lower than the floor-to-floor height that is achieved with steel. That is why concrete is used more in DC than in other cities. Designers can typically get one more floor out of a building when designed by concrete rather than steel. However, Apartment Complex is a hybrid. Cast-in-place concrete was definitely not the preferred method by the builder. This project combines many different materials such as; wood, steel, metal studs, as well as concrete.

The Apartment Complex is located just few blocks away from a metro and bus stop. Most of the workers take the bus or the metro to get to the jobsite. However, there are 5 public parking garages that are located within three blocks from the construction site. Those public garages are somewhat expensive and are not covered by the owner. However, some of the employees park their cars there because it is convenient.

On the jobsite, there are two thirty cubic yard open-top dumpster that are removed constantly. There is a \$135 charge per pull, in addition to a \$15 fuel surcharge and a \$60 disposal charge. Laboratory tests results of soil from 8 test borings that were taken revealed that there were mainly three types of soils; reddish brown clayey sand with gravel, reddish brown sandy lean clay, and reddish brown silty sand with gravel. Groundwater was not encountered in any of the test borings taken.

The weather in Washington DC changes drastically during summer and winter. The positioning of the building as well as the exterior wall types will determine the size of the HVAC system to maintain the building in the optimum temperature on each season. One of my analyses will be to examine the exterior wall to determine if the addition of insulation material could reduce the size of the HVAC system. If this is true, then a large amount of energy could be saved.

## **Building Systems Summary**

### **Cast in Place Concrete**

The Apartment Complex has a structural systems that combines many materials. Concrete is only used up to the second floor slab. Cast in place concrete is used in this project for the foundations, perimeter wall up to the second floor, and beams and columns that extend from G2 level until the first floor slab. Sheeting panels with formwork in the form of walers were used for foundation formwork. For the concrete perimeter wall, vertically arranged upright timbers were used. Timbers were diagonally braced at both sides. Beams and columns formwork where prefabricated depending on the size of each member. Most of the concrete was placed with crane and bucket or by direct chute.

### **Precast Concrete**

Precast concrete members were used only for decorative purposes. Those concrete parts that were hard to build with formwork were ordered as precast concrete and then installed. Two tower Cranes were used to mobilize precast members. Crane #1 was a Pecco SK 400, with radius of 220 feet and a capacity of 10,100 lbs at the tip. Tower Crane #2 was a Peiner SK 315 with radius of 180 feet and a capacity of 11,900 lbs at the tip. The location of both cranes are shown on the site plan on page 13.

### **Mechanical System**

The mechanical system consists on three rooftop units, and two air-handling units located on the first floor that serves the retail stores, restaurants, and the parking garage. The HVAC system for the residential area consists on individual HVAC units for each apartment. The mechanical system contains thirteen different types of pumps. It has two 400 ton chillers and two 1200 GPM 400 ton cooling towers. The air is distributed through galvanizes steel ducts that run all throughout the building. The building has a wet pipe sprinkler system. Smoke detectors as well as sprinklers are located all throughout the building.

### **Electrical System**

There are two 480/277V, three phase, 2500A main breakers that control the residential area, and two 120/208V, three phase, 2000A main breakers that control the retail and restaurant service. Lighting consists of fluorescent and halide fixtures, ranging from 120-277V, which are common throughout the building. The electrical room is located on the northwest corner of garage G1.

## **Masonry**

Both load bearing and veneer masonry was used in this project. Load bearing masonry was only used on interior space. CMU and brick was used as load bearing masonry. CMU's were installed with lintels, rebar, and stirrups. Brick was installed with steel angles. Veneer masonry was used on most of the façade of the building for aesthetic purposes. Most of the veneer masonry was 4" face brick tied with masonry ties.

## **Excavation Support**

Since there are two underground parking garages, excavation support for a deep excavation was needed. Tiebacks and anchors were used for the support system. This support system avoids having a congested site. The absence of interior obstructions makes the excavation process much easier. This support system is mainly used in projects where space is limited and congestion needs to be avoided.

## **Project Cost Evaluation**

### **Total Project Cost**

Total Cost: \$50,047,750

Square Foot Cost: \$118.19/SF

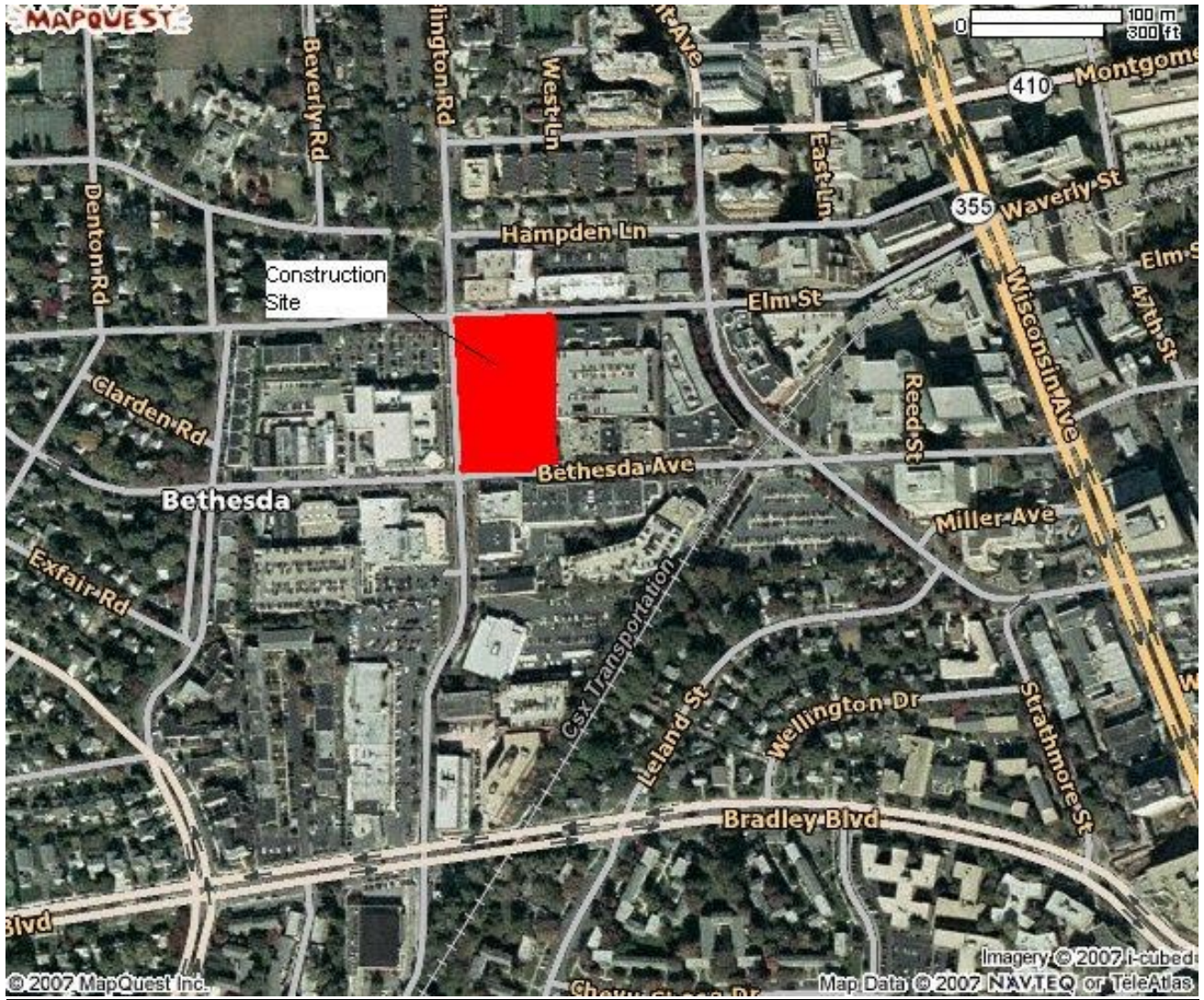
### **Actual Project Cost**

Total Cost: \$42,584,209

Square Foot Cost: \$100.56/SF

	Total Cost of System	Square Foot Cost	% of Total Project Cost
Structural System	\$11,661,204	\$27.54	27.38%
Mechanical System	\$4,304,705	\$10.17	10.11%
Electrical System	\$3,470,420	\$8.20	8.15%
Roofing System	\$1,709,289	\$4.04	4.01%
Fire Protection	\$1,491,035	\$3.52	3.50%
Masonry	\$2,367,829	\$5.59	5.56%

**E. Site Plan of existing condition**



Above is an aerial picture of Bethesda, Maryland. The red portion is where the Apartment Complex project is located. The project is located close to Wisconsin Ave which is shown in yellow. On the following page, pictures of a 3D model of the building, as well as a site plan of the project showing all temporary facilities are shown.



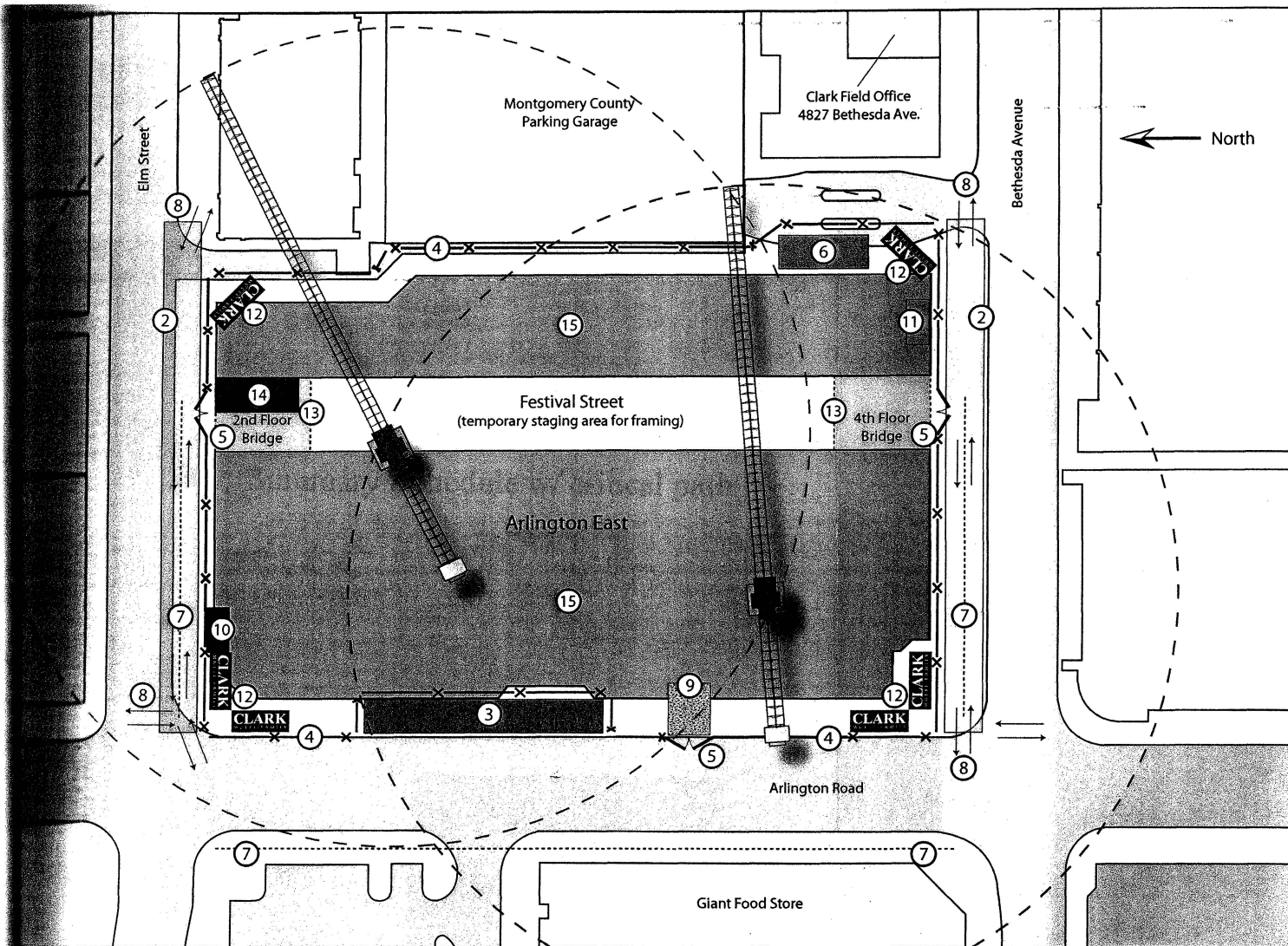
# Arlington East

Bethesda, MD

## Site Utilization Plan

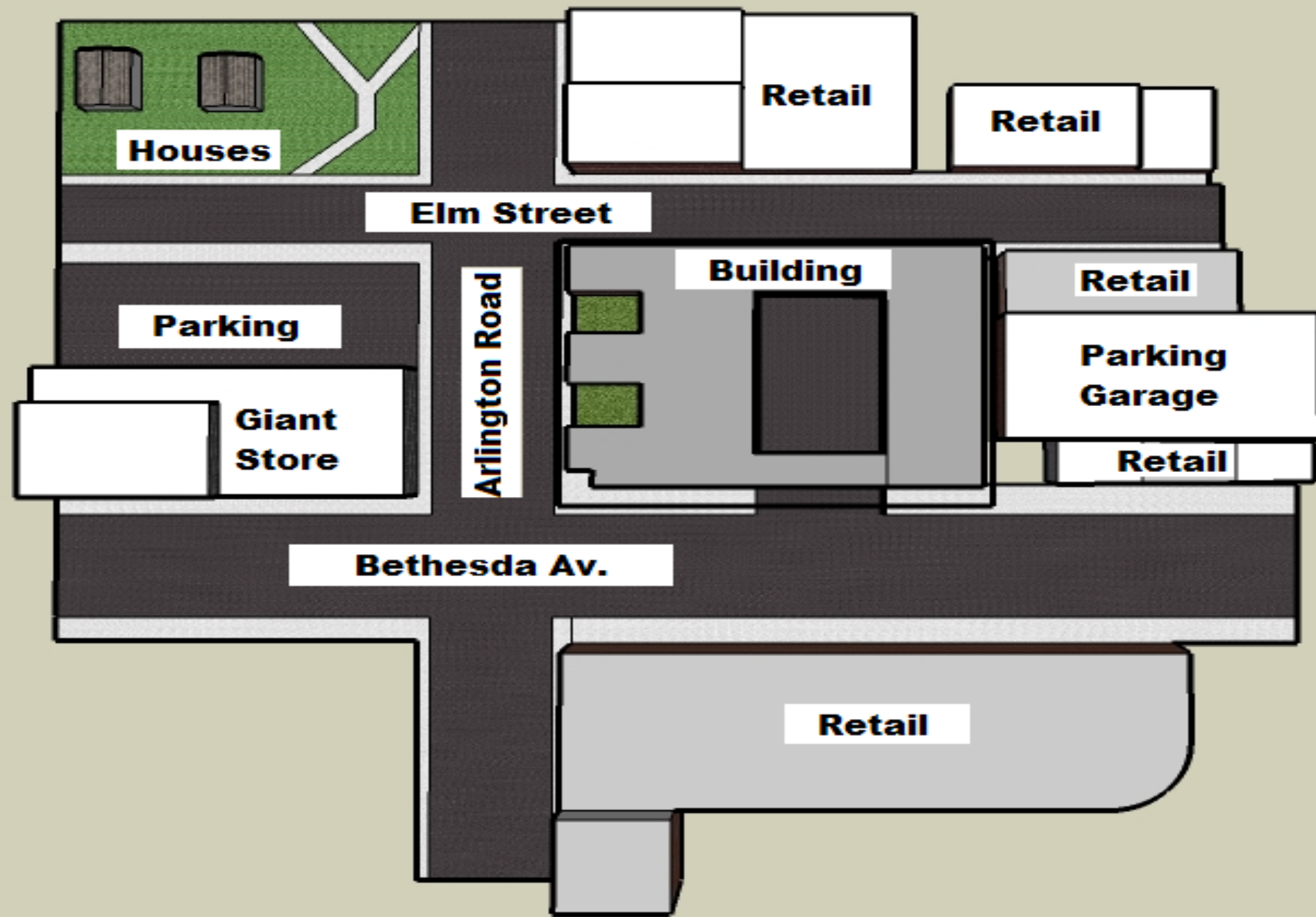
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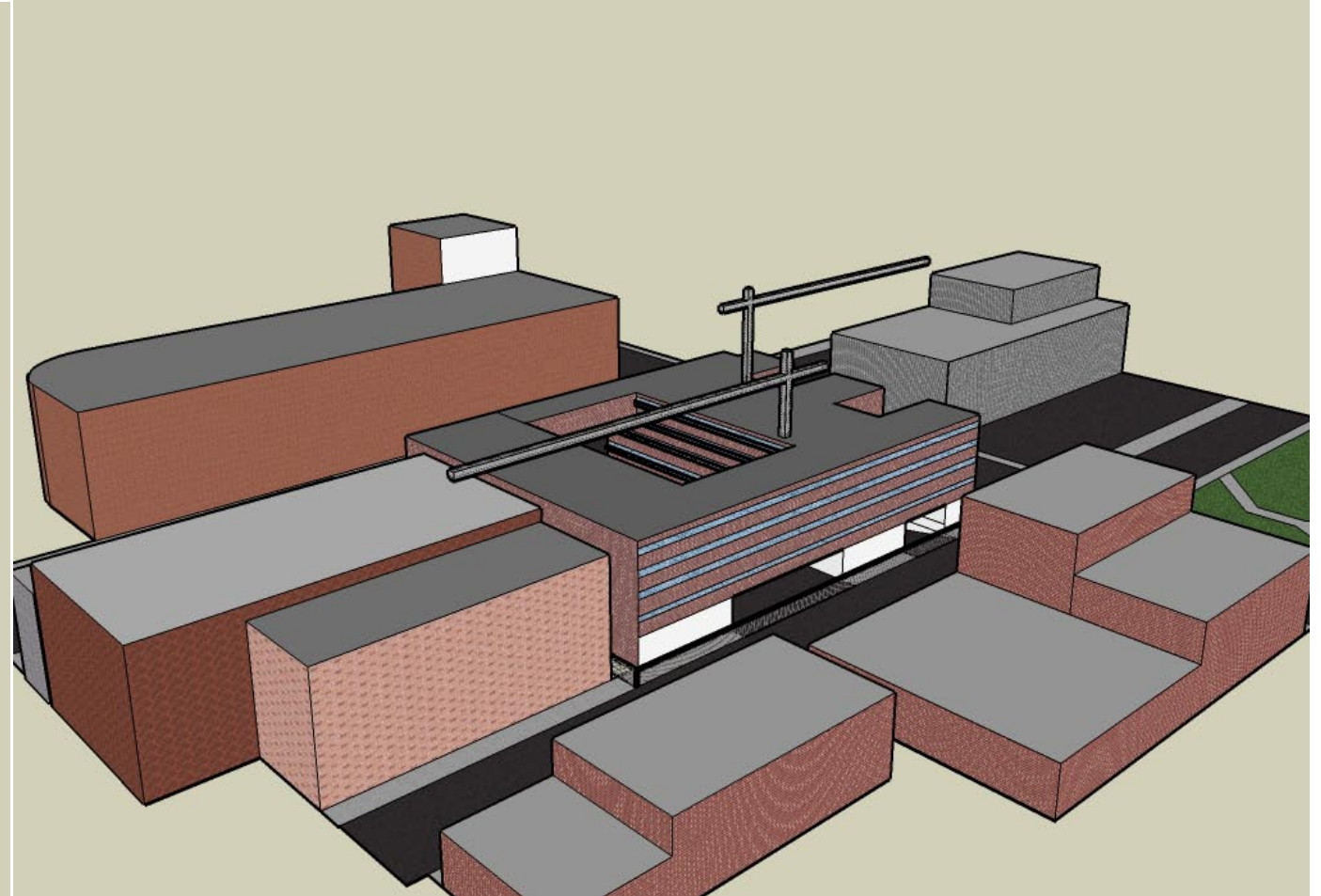
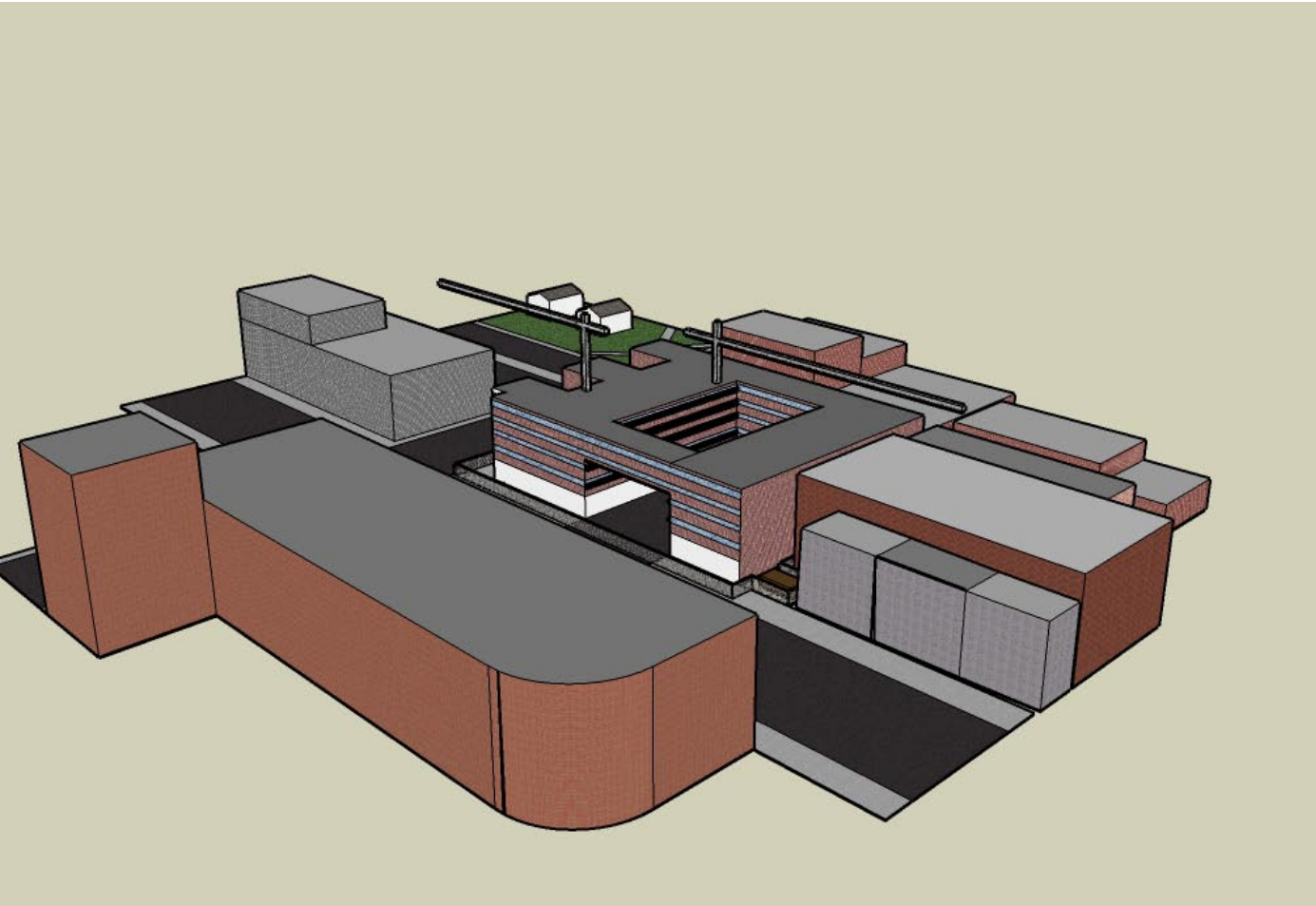
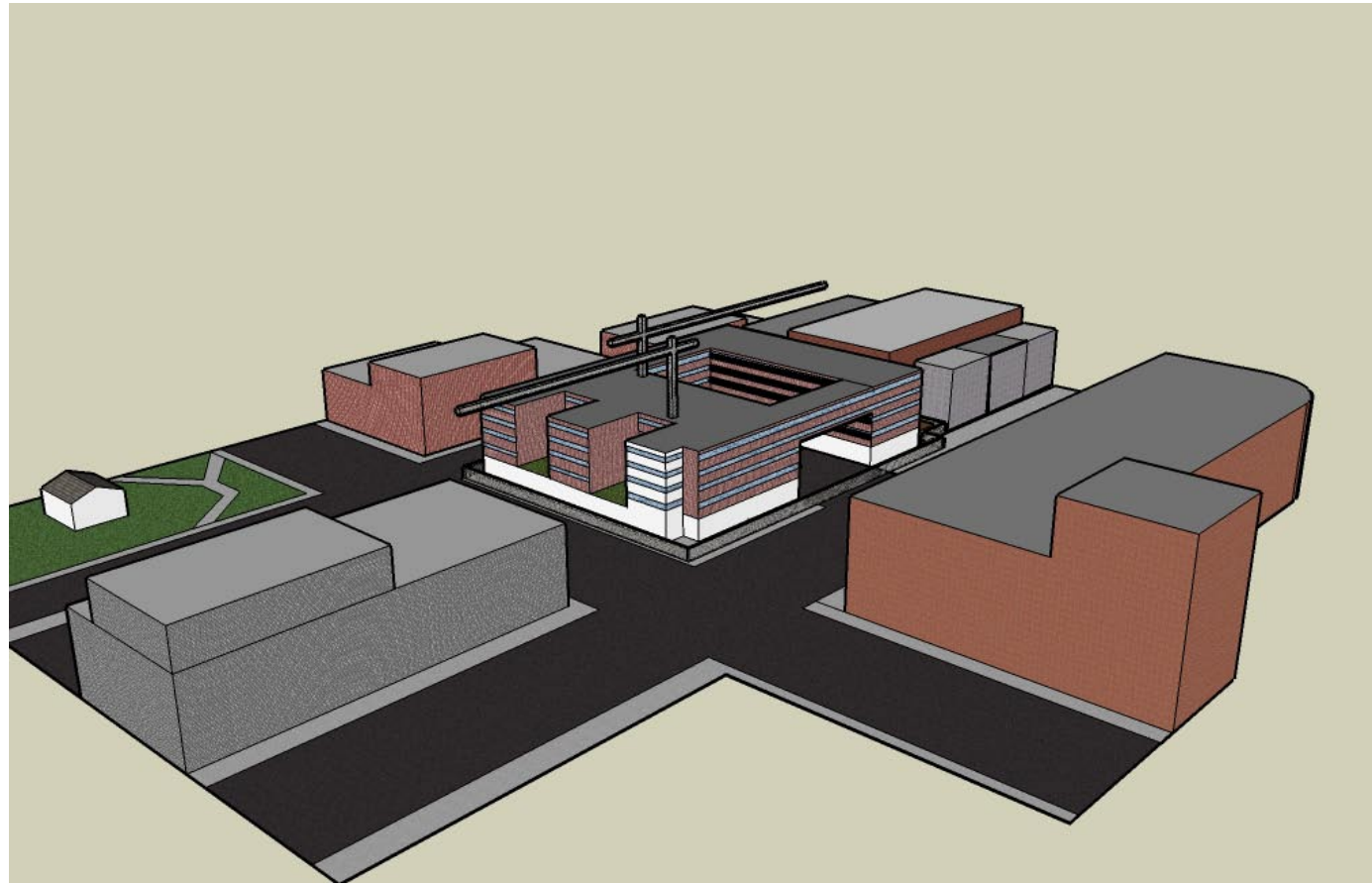
1. Existing Building
2. Covered Walkway
3. Concrete Staging Area
4. Construction Fence
5. Construction Entrance & Gate
6. M & L Field Office
7. Overhead Power Line
8. Pedestrian Traffic
9. Proposed Construction Entrance
10. Temporary Power
11. Temporary Water
12. CLARK Sign
13. Bridge
14. Trash Chute w/ Dumpster Below
15. New Building

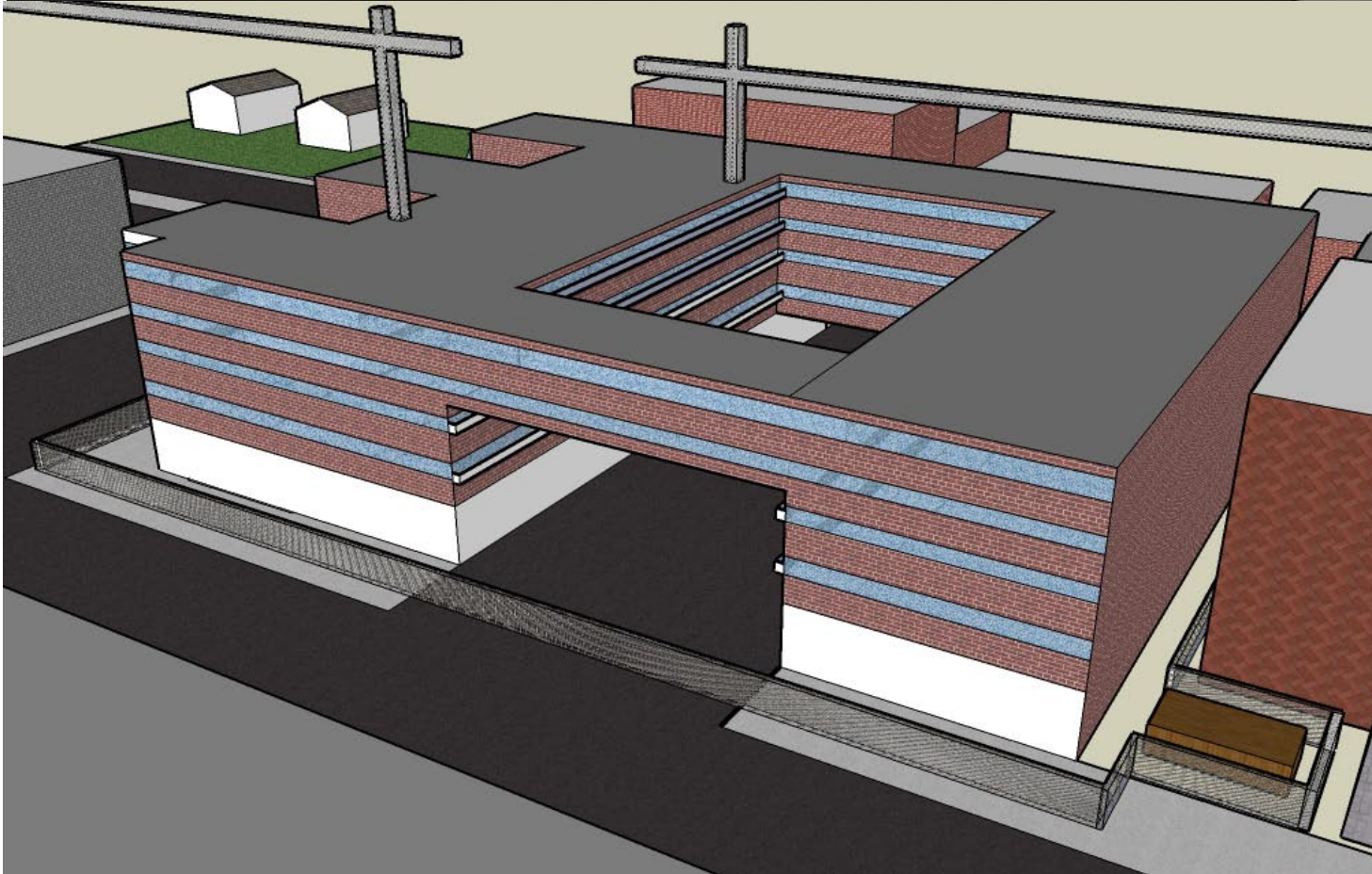
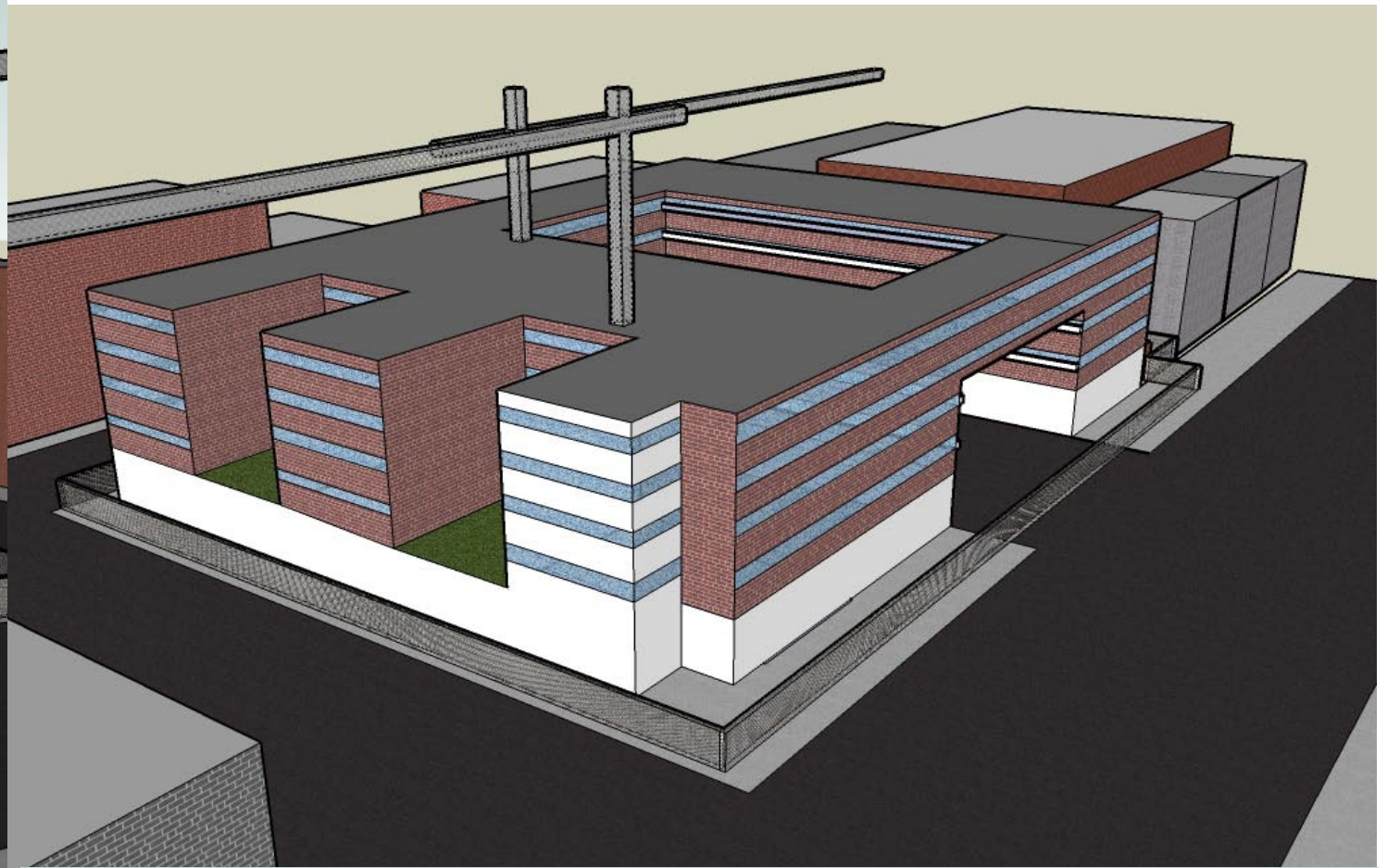
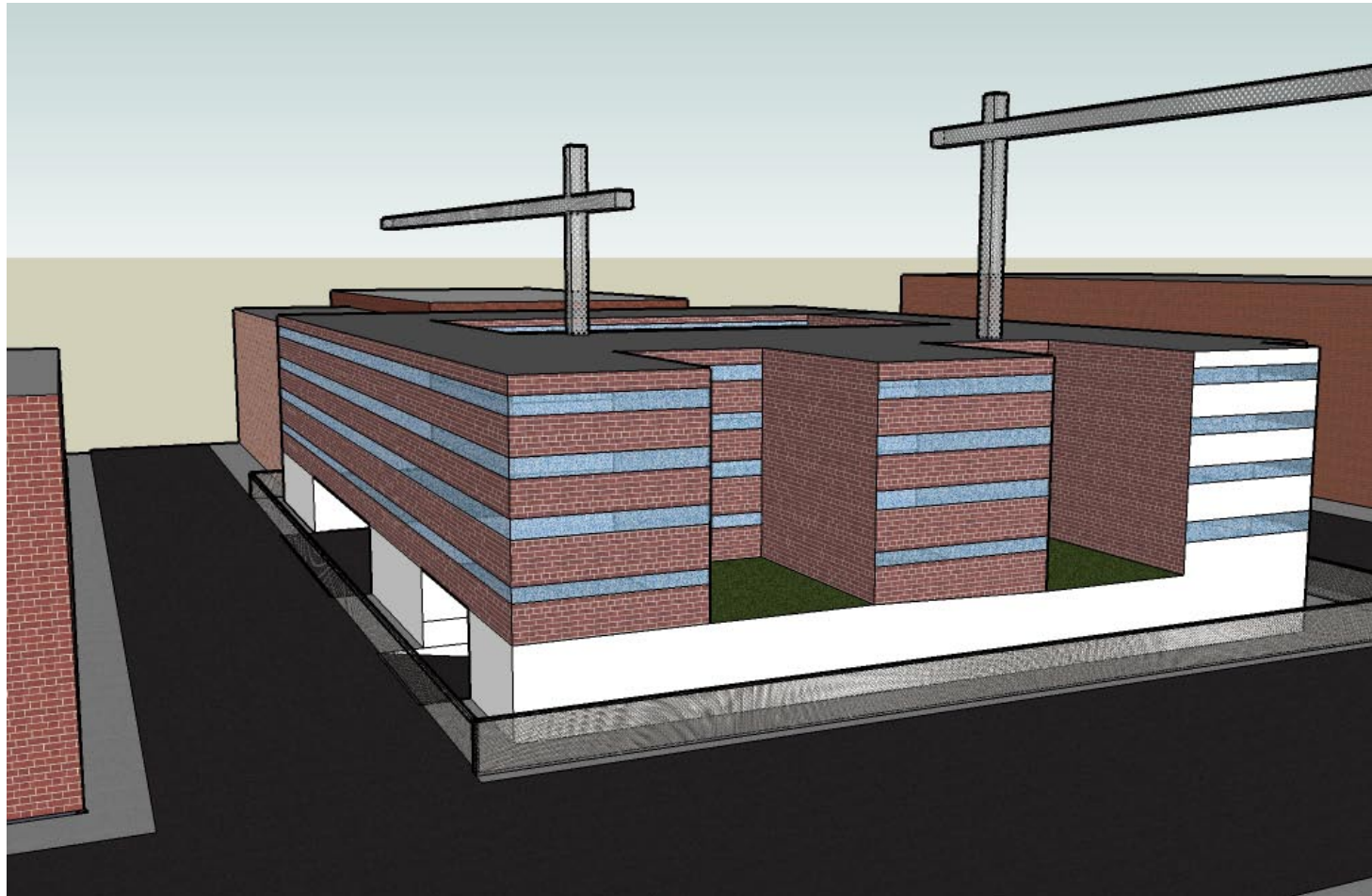


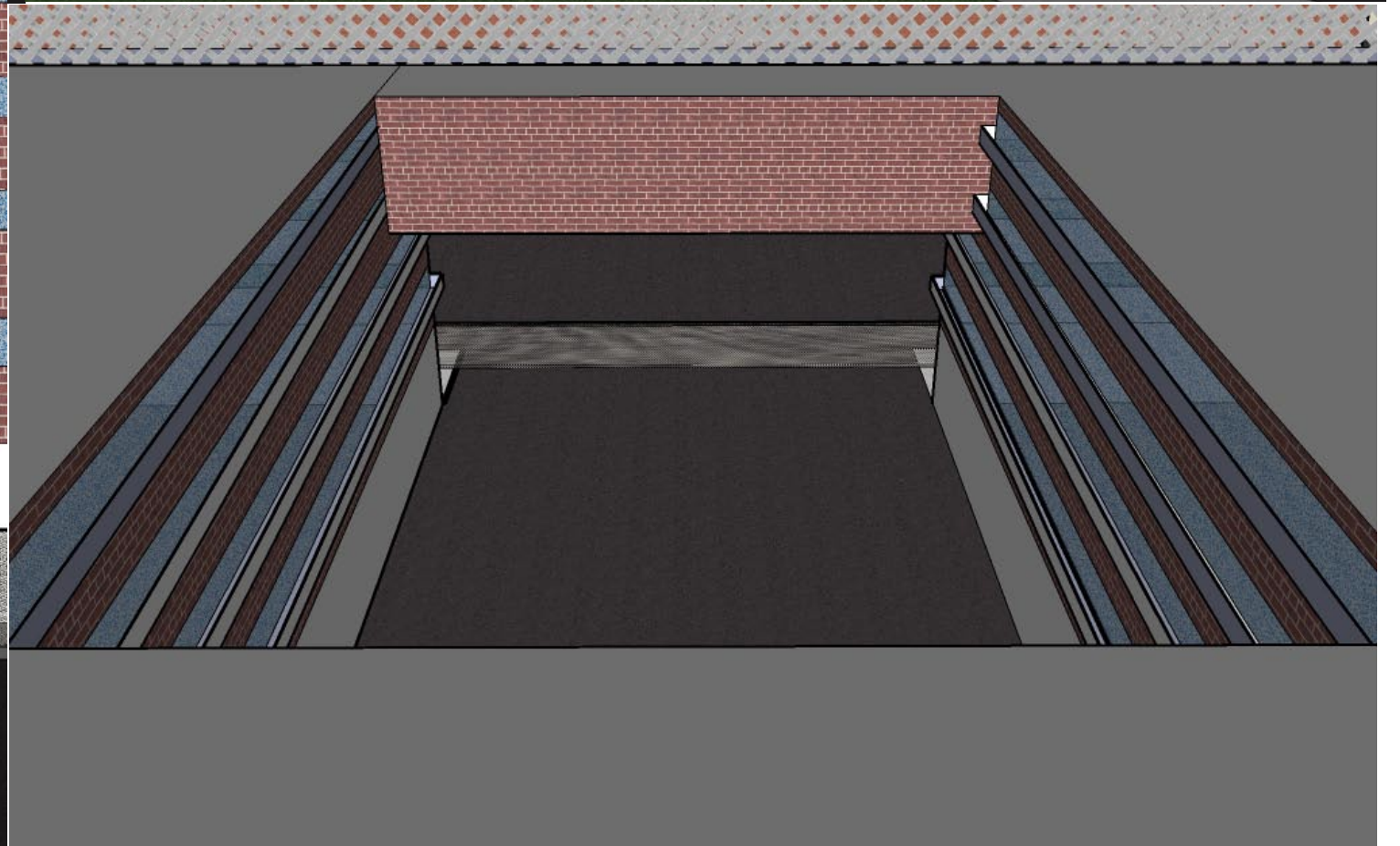
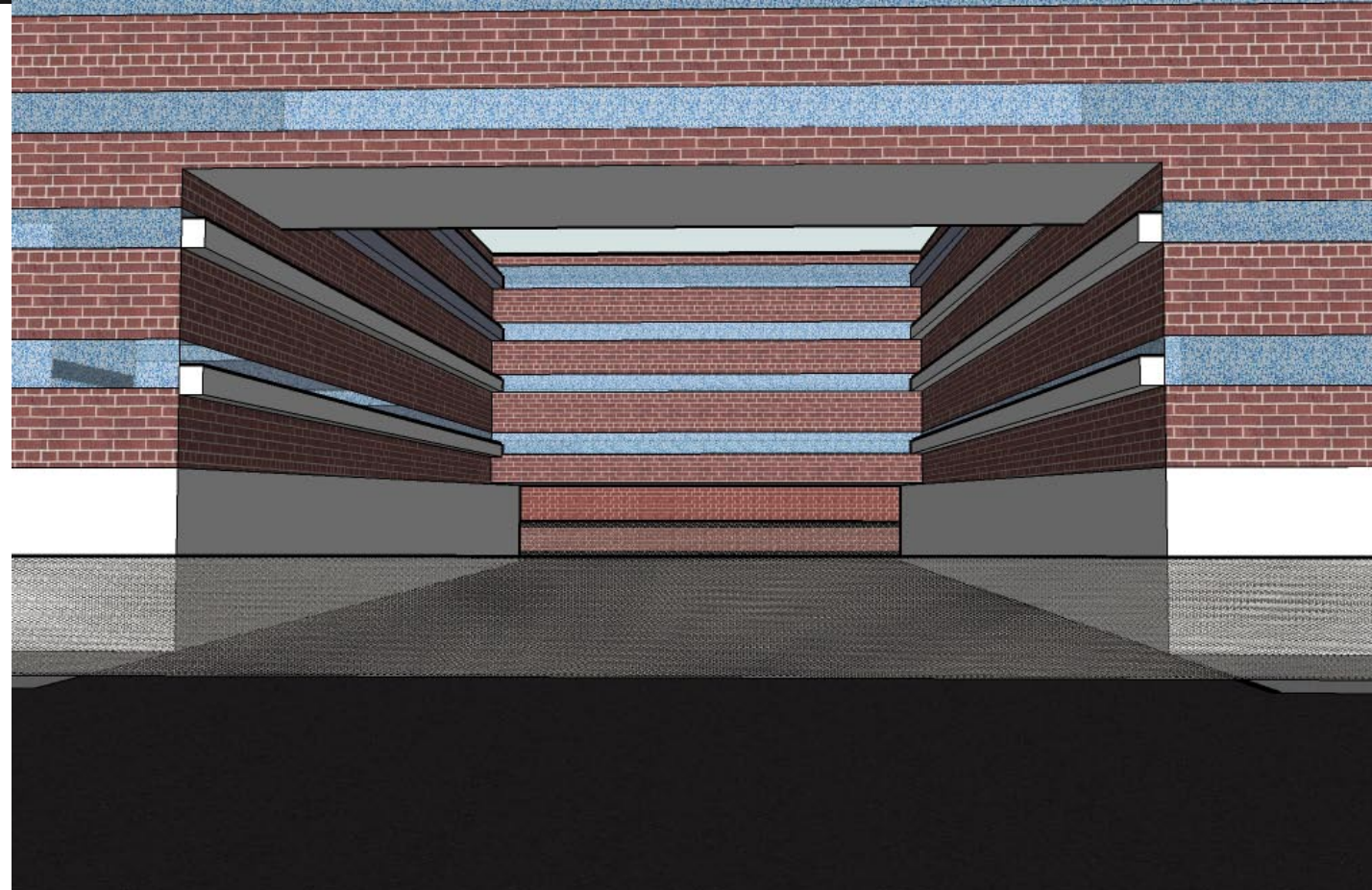
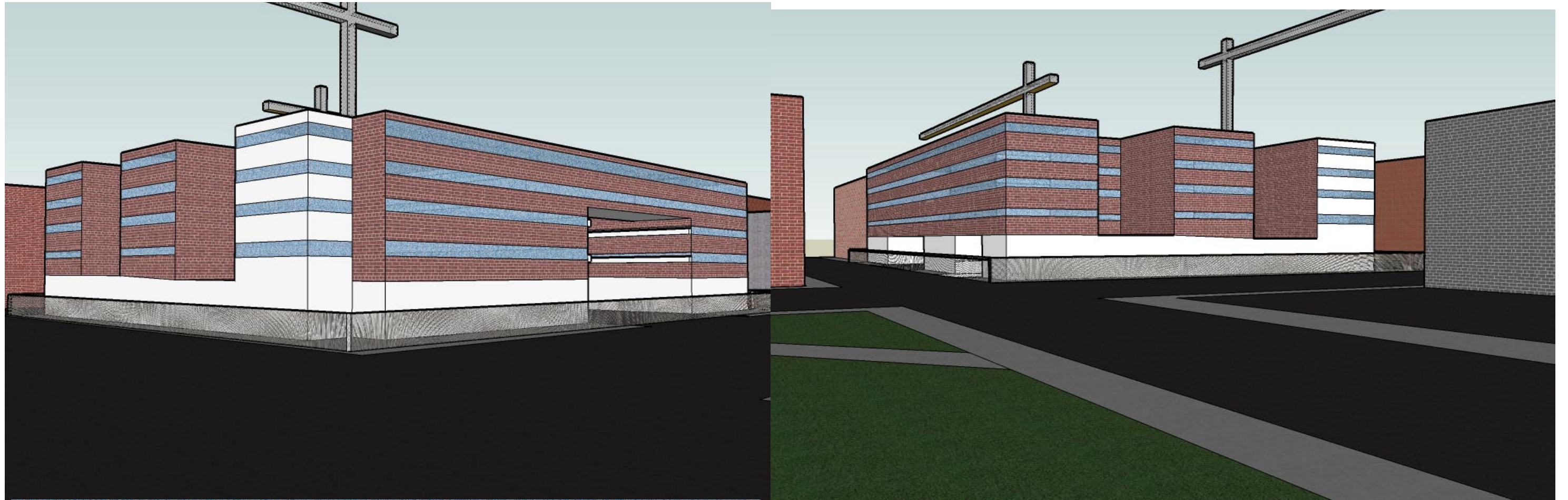
June 28, 2006











## **Project Schedule Summary**

Foundations are the most critical activity for maintaining the project on schedule. Once the foundations are set in place, the rest of the activities should be done within schedule. That is why many CM/GC subcontract all of the activities besides foundations. They know that by self performing the foundations, they will have more control of the schedule.

Since the Apartment Complex structural system is mainly wood, the delivery of wood to the site was very important to the schedule. A delay on wood delivery would delay the entire project. Once the foundations were in place, and the wood was delivered to the project, finishing the structure became just another everyday activity.

The project summary schedule for the Apartment Complex project is shown on the next page.

ID	Task Name	Duration	Start	Finish	April 1		September 2		March 11		September 1		February 21		August 11		February 1		J				
					2/27	5/22	8/14	11/6	1/29	4/23	7/16	10/8	12/31	3/25	6/17	9/9	12/2	2/24		5/18			
1	Design/Preconstruction	166 days	Mon 6/6/05	Mon 1/23/06																			
2	Purchase Subs	23 days	Mon 1/16/06	Wed 2/15/06																			
3	Permitting	117 days	Wed 11/9/05	Thu 4/20/06																			
4	Excavation	193 days	Mon 12/12/05	Wed 9/6/06																			
5	Foundations	0 days	Fri 12/16/05	Fri 12/16/05																			
6	Install Piles - Section A	3 days	Fri 12/16/05	Tue 12/20/05																			
7	Install Piles - Section B	4 days	Wed 12/21/05	Mon 12/26/05																			
8	Install Piles - Section C	3 days	Wed 12/28/05	Fri 12/30/05																			
9	Excavate for strap beams	3 days	Tue 2/28/06	Thu 3/2/06																			
10	Pour strap beams	5 days	Wed 3/1/06	Tue 3/7/06																			
11	Backfill at strap beams	2 days	Mon 3/20/06	Tue 3/21/06																			
12	Complete Perimeter Piles	35 days	Mon 4/24/06	Fri 6/9/06																			
13	Excavate to tiebacks	33 days	Mon 4/24/06	Wed 6/7/06																			
14	Install tiebacks	14 days	Wed 6/14/06	Mon 7/3/06																			
15	Complete Excavation	49 days	Fri 6/30/06	Wed 9/6/06																			
16	Install Ave utilities	45 days	Fri 6/30/06	Thu 8/31/06																			
17	Concrete	0 days	Tue 7/18/06	Tue 7/18/06																			
18	Exc/Pour tower crane bases	1 day	Thu 8/24/06	Thu 8/24/06																			
19	Pour Footings	44 days	Wed 8/2/06	Mon 10/2/06																			
20	Pour foundation walls	57 days	Thu 8/3/06	Fri 10/20/06																			
21	Pour slab on grade	72 days	Thu 8/3/06	Fri 11/10/06																			
22	Pour G-1 deck	30 days	Mon 10/9/06	Fri 11/17/06																			
23	Pour first floor deck	29 days	Thu 11/16/06	Tue 12/26/06																			
24	Pour second floor deck	31 days	Wed 12/27/06	Wed 2/7/07																			
25	Structural Steel	0 days	Thu 2/8/07	Thu 2/8/07																			
26	Install str. Steel at bridges	5 days	Thu 2/8/07	Wed 2/14/07																			
27	Inspect Steel	2 days	Thu 2/15/07	Fri 2/16/07																			
28	Pour bridge	3 days	Mon 2/19/07	Wed 2/21/07																			
29	Wood Framing	0 days	Thu 2/8/07	Thu 2/8/07																			
30	2nd Floor section 1	0 days	Thu 2/8/07	Thu 2/8/07																			
31	Layout interior walls	2 days	Thu 2/8/07	Fri 2/9/07																			
32	Frame interior walls	8 days	Fri 2/9/07	Tue 2/20/07																			
33	floor trusses and deck	3 days	Mon 2/19/07	Wed 2/21/07																			
34	Frame exterior walls	5 days	Fri 1/26/07	Thu 2/1/07																			
35	2nd Floor section 2	0 days	Thu 2/22/07	Thu 2/22/07																			
36	Layout interior walls	2 days	Thu 2/22/07	Fri 2/23/07																			
37	Frame interior walls	8 days	Fri 2/23/07	Tue 3/6/07																			
38	floor trusses and deck	4 days	Mon 3/5/07	Thu 3/8/07																			
39	Frame exterior walls	5 days	Tue 2/13/07	Mon 2/19/07																			

Project: tech 2 schedule Date: Mon 4/7/08	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	

ID	Task Name	Duration	Start	Finish	April 1		September 2		March 11		September 1		February 21		August 11		February 1		J
					2/27	5/22	8/14	11/6	1/29	4/23	7/16	10/8	12/31	3/25	6/17	9/9	12/2	2/24	
40	2nd Floor section 3	0 days	Fri 3/9/07	Fri 3/9/07										◆ 3/9					
41	Layout interior walls	2 days	Fri 3/9/07	Mon 3/12/07									I						
42	Frame interior walls	8 days	Mon 3/12/07	Wed 3/21/07									I						
43	floor trusses and deck	4 days	Tue 3/20/07	Fri 3/23/07									I						
44	Frame exterior walls	5 days	Mon 2/26/07	Fri 3/2/07									I						
45	3rd Floor section 1	0 days	Thu 2/22/07	Thu 2/22/07										◆ 2/22					
46	Layout interior walls	2 days	Thu 2/22/07	Fri 2/23/07									I						
47	Frame interior walls	8 days	Fri 2/23/07	Tue 3/6/07									I						
48	floor trusses and deck	3 days	Mon 3/5/07	Wed 3/7/07									I						
49	Frame exterior walls	5 days	Tue 2/20/07	Mon 2/26/07									I						
50	3rd Floor section 2	0 days	Fri 3/9/07	Fri 3/9/07										◆ 3/9					
51	Layout interior walls	2 days	Fri 3/9/07	Mon 3/12/07									I						
52	Frame interior walls	8 days	Wed 3/14/07	Fri 3/23/07									I						
53	floor trusses and deck	4 days	Thu 3/22/07	Tue 3/27/07									I						
54	Frame exterior walls	5 days	Tue 3/6/07	Mon 3/12/07									I						
55	3rd Floor section 3	0 days	Mon 3/26/07	Mon 3/26/07										◆ 3/26					
56	Layout interior walls	2 days	Mon 3/26/07	Tue 3/27/07									I						
57	Frame interior walls	9 days	Thu 3/29/07	Tue 4/10/07									I						
58	floor trusses and deck	4 days	Mon 4/9/07	Thu 4/12/07									I						
59	Frame exterior walls	5 days	Wed 3/21/07	Tue 3/27/07									I						
60	4th Floor section 1	0 days	Wed 3/7/07	Wed 3/7/07										◆ 3/7					
61	Layout interior walls	2 days	Wed 3/7/07	Thu 3/8/07									I						
62	Frame interior walls	8 days	Wed 2/14/07	Fri 2/23/07									I						
63	floor trusses and deck	16 days	Wed 3/7/07	Wed 3/28/07									I						
64	Frame exterior walls	5 days	Tue 3/6/07	Mon 3/12/07									I						
65	4th Floor section 2	0 days	Thu 3/29/07	Thu 3/29/07										◆ 3/29					
66	Layout interior walls	2 days	Thu 3/29/07	Fri 3/30/07									I						
67	Frame interior walls	8 days	Mon 4/2/07	Wed 4/11/07									I						
68	floor trusses and deck	4 days	Tue 4/10/07	Fri 4/13/07									I						
69	Frame exterior walls	5 days	Fri 3/23/07	Thu 3/29/07									I						
70	4th Floor section 3	0 days	Mon 4/16/07	Mon 4/16/07										◆ 4/16					
71	Layout interior walls	2 days	Mon 4/16/07	Tue 4/17/07									I						
72	Frame interior walls	9 days	Wed 4/18/07	Mon 4/30/07									I						
73	floor trusses and deck	4 days	Fri 4/27/07	Wed 5/2/07									I						
74	Frame exterior walls	5 days	Tue 4/10/07	Mon 4/16/07									I						
75	5th Floor section 1	0 days	Mon 3/26/07	Mon 3/26/07										◆ 3/26					
76	Layout interior walls	2 days	Mon 3/26/07	Tue 3/27/07									I						
77	Frame interior walls	8 days	Wed 3/28/07	Fri 4/6/07									I						
78	floor trusses and deck	3 days	Thu 4/5/07	Mon 4/9/07									I						

Project: tech 2 schedule Date: Mon 4/7/08	Task		Milestone	◆	External Tasks	
	Split		Summary		External Milestone	◆
	Progress		Project Summary		Deadline	↓



ID	Task Name	Duration	Start	Finish	April 1		September 2		March 11		September 1		February 21		August 11		February 1		J
					2/27	5/22	8/14	11/6	1/29	4/23	7/16	10/8	12/31	3/25	6/17	9/9	12/2	2/24	
79	Frame exterior walls	5 days	Fri 3/23/07	Thu 3/29/07															
80	5th Floor section 2	0 days	Fri 4/13/07	Fri 4/13/07															
81	Layout interior walls	2 days	Fri 4/13/07	Mon 4/16/07															
82	Frame interior walls	8 days	Thu 4/19/07	Mon 4/30/07															
83	floor trusses and deck	4 days	Mon 4/30/07	Thu 5/3/07															
84	Frame exterior walls	5 days	Wed 4/11/07	Tue 4/17/07															
85	5th Floor section 3	0 days	Fri 5/4/07	Fri 5/4/07															
86	Layout interior walls	2 days	Fri 5/4/07	Mon 5/7/07															
87	Frame interior walls	8 days	Tue 5/8/07	Thu 5/17/07															
88	floor trusses and deck	3 days	Thu 5/17/07	Mon 5/21/07															
89	Frame exterior walls	5 days	Mon 4/30/07	Fri 5/4/07															
90	Parking Garage	0 days	Mon 2/12/07	Mon 2/12/07															
91	G-2 sprinkler piping	10 days	Mon 2/12/07	Fri 2/23/07															
92	G-1 sprinkler piping	10 days	Mon 2/26/07	Fri 3/9/07															
93	G-2 CMU	10 days	Mon 2/12/07	Fri 2/23/07															
94	G-1 CMU	10 days	Mon 2/26/07	Fri 3/9/07															
95	Set mechanical equipment	15 days	Mon 3/19/07	Fri 4/6/07															
96	Wire mech equipment	10 days	Mon 4/9/07	Fri 4/20/07															
97	MEP start-up	10 days	Wed 8/15/07	Tue 8/28/07															
98	Unit Rough In	0 days	Fri 9/21/07	Fri 9/21/07															
99	1st floor	0 days	Fri 9/21/07	Fri 9/21/07															
100	Sprinkler / Mechanical R-I	10 days	Fri 9/21/07	Thu 10/4/07															
101	Electrical R-I	11 days	Fri 10/26/07	Fri 11/9/07															
102	R-I Inspection	5 days	Fri 11/9/07	Thu 11/15/07															
103	2nd floor section 1	0 days	Wed 2/21/07	Wed 2/21/07															
104	Sprinkler / Mechanical R-I	8 days	Wed 2/21/07	Fri 3/2/07															
105	Electrical R-I	8 days	Tue 2/27/07	Thu 3/8/07															
106	R-I Inspection	6 days	Mon 3/5/07	Mon 3/12/07															
107	2nd floor section 2	0 days	Wed 3/7/07	Wed 3/7/07															
108	Sprinkler / Mechanical R-I	8 days	Wed 3/7/07	Fri 3/16/07															
109	Electrical R-I	8 days	Tue 3/13/07	Thu 3/22/07															
110	R-I Inspection	6 days	Mon 3/19/07	Mon 3/26/07															
111	2nd floor section 3	0 days	Thu 3/22/07	Thu 3/22/07															
112	Sprinkler / Mechanical R-I	8 days	Thu 3/22/07	Mon 4/2/07															
113	Electrical R-I	8 days	Wed 3/28/07	Fri 4/6/07															
114	R-I Inspection	6 days	Tue 4/3/07	Tue 4/10/07															
115	3rd floor section 1	0 days	Wed 4/11/07	Wed 4/11/07															
116	Sprinkler / Mechanical R-I	8 days	Wed 4/11/07	Fri 4/20/07															
117	Electrical R-I	8 days	Tue 4/17/07	Thu 4/26/07															

Project: tech 2 schedule Date: Mon 4/7/08	Task		Milestone		External Tasks	
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118	R-I Inspection	6 days	Mon 4/23/07	Mon 4/30/07															
119	3rd floor section 2	0 days	Mon 4/23/07	Mon 4/23/07															
120	Sprinkler / Mechanical R-I	119 days	Mon 4/23/07	Thu 10/4/07															
121	Electrical R-I	8 days	Mon 4/23/07	Wed 5/2/07															
122	R-I Inspection	6 days	Thu 5/3/07	Thu 5/10/07															
123	3rd floor section 3	0 days	Thu 5/3/07	Thu 5/3/07															
124	Sprinkler / Mechanical R-I	8 days	Thu 5/3/07	Mon 5/14/07															
125	Electrical R-I	8 days	Wed 5/9/07	Fri 5/18/07															
126	R-I Inspection	6 days	Tue 5/15/07	Tue 5/22/07															
127	4th floor section 1	0 days	Tue 5/15/07	Tue 5/15/07															
128	Sprinkler / Mechanical R-I	7 days	Tue 5/15/07	Wed 5/23/07															
129	Electrical R-I	8 days	Mon 5/21/07	Wed 5/30/07															
130	R-I Inspection	6 days	Fri 5/25/07	Fri 6/1/07															
131	4th floor section 2	0 days	Thu 5/24/07	Thu 5/24/07															
132	Sprinkler / Mechanical R-I	8 days	Thu 5/24/07	Mon 6/4/07															
133	Electrical R-I	8 days	Thu 5/31/07	Mon 6/11/07															
134	R-I Inspection	6 days	Wed 6/6/07	Wed 6/13/07															
135	4th floor section 3	0 days	Tue 6/5/07	Tue 6/5/07															
136	Sprinkler / Mechanical R-I	8 days	Tue 6/5/07	Thu 6/14/07															
137	Electrical R-I	8 days	Tue 6/12/07	Thu 6/21/07															
138	R-I Inspection	6 days	Wed 6/20/07	Wed 6/27/07															
139	5th floor section 1	0 days	Thu 6/28/07	Thu 6/28/07															
140	Sprinkler / Mechanical R-I	9 days	Thu 6/28/07	Tue 7/10/07															
141	Electrical R-I	8 days	Thu 7/5/07	Mon 7/16/07															
142	R-I Inspection	6 days	Wed 7/11/07	Wed 7/18/07															
143	5th floor section 2	0 days	Wed 7/11/07	Wed 7/11/07															
144	Sprinkler / Mechanical R-I	8 days	Wed 7/11/07	Fri 7/20/07															
145	Electrical R-I	8 days	Tue 7/17/07	Thu 7/26/07															
146	R-I Inspection	6 days	Fri 7/20/07	Fri 7/27/07															
147	5th floor section 3	0 days	Mon 7/23/07	Mon 7/23/07															
148	Sprinkler / Mechanical R-I	8 days	Mon 7/23/07	Wed 8/1/07															
149	Electrical R-I	8 days	Fri 7/27/07	Tue 8/7/07															
150	R-I Inspection	6 days	Thu 8/2/07	Thu 8/9/07															
151	Unit Finishes	0 days	Tue 7/3/07	Tue 7/3/07															
152	2nd floor section 1	103 days	Tue 7/3/07	Thu 11/22/07															
153	2nd floor section 2	88 days	Thu 7/26/07	Mon 11/26/07															
154	2nd floor section 3	88 days	Wed 8/8/07	Fri 12/7/07															
155	3rd floor section 1	103 days	Tue 7/3/07	Thu 11/22/07															
156	3rd floor section 2	87 days	Tue 8/21/07	Wed 12/19/07															

Project: tech 2 schedule Date: Mon 4/7/08	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	

ID	Task Name	Duration	Start	Finish	April 1		September 2		March 11		September 1		February 21		August 11		February 1		J
					2/27	5/22	8/14	11/6	1/29	4/23	7/16	10/8	12/31	3/25	6/17	9/9	12/2	2/24	
157	3rd floor section 3	90 days	Fri 8/31/07	Thu 1/3/08															
158	4th floor section 1	104 days	Thu 9/13/07	Tue 2/5/08															
159	4th floor section 2	90 days	Fri 10/5/07	Thu 2/7/08															
160	4th floor section 3	91 days	Wed 10/17/07	Wed 2/20/08															
161	5th floor section 1	104 days	Thu 9/13/07	Tue 2/5/08															
162	5th floor section 2	90 days	Tue 10/30/07	Mon 3/3/08															
163	5th floor section 3	91 days	Fri 11/9/07	Fri 3/14/08															
164	MEP	0 days	Tue 7/3/07	Tue 7/3/07															
165	Install RTU's 1,2, and 3	6 days	Tue 7/3/07	Tue 7/10/07															
166	Pipe RTU's	10 days	Wed 7/11/07	Tue 7/24/07															
167	Wire RTU's	10 days	Wed 7/11/07	Tue 7/24/07															
168	Install RT condensing units	21 days	Tue 7/3/07	Tue 7/31/07															
169	Wire RT condensing units	20 days	Wed 7/18/07	Tue 8/14/07															
170	Vertical Transportation	0 days	Tue 7/3/07	Tue 7/3/07															
171	Install elevator 1	101 days	Tue 7/3/07	Tue 11/20/07															
172	Install elevator 2	81 days	Tue 7/3/07	Tue 10/23/07															
173	Install elevator 3 and 4	101 days	Tue 7/3/07	Tue 11/20/07															
174	Final Cleaning	15 days	Mon 3/17/08	Fri 4/4/08															
175	Testing and Final Inspection	0 days	Wed 8/29/07	Wed 8/29/07															
176	Parking Garage	10 days	Wed 8/29/07	Tue 9/11/07															
177	1st floor	5 days	Thu 1/24/08	Wed 1/30/08															
178	2nd floor	5 days	Mon 3/17/08	Fri 3/21/08															
179	3rd floor	5 days	Mon 3/24/08	Fri 3/28/08															
180	4th floor	5 days	Mon 3/31/08	Fri 4/4/08															
181	5th floor	5 days	Mon 4/7/08	Fri 4/11/08															
182	Substantial Completion	0 days	Fri 4/11/08	Fri 4/11/08															

Project: tech 2 schedule Date: Mon 4/7/08	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	