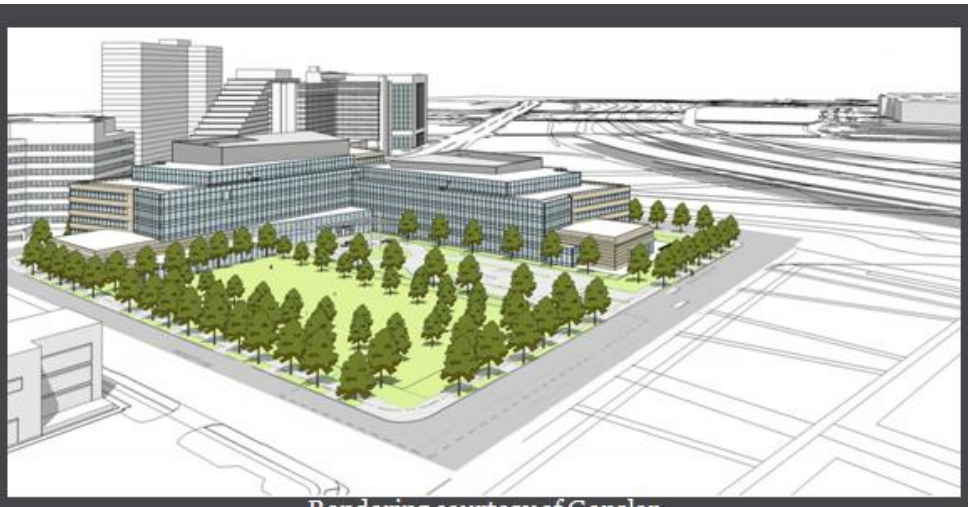


Rendering courtesy of Gensler

Memorial Vista

A North Virginia Office Building

Technical Assignment I

William J. Gamble | 5th Year – Construction Option | September 16th, 2013

Executive Summary

Memorial Vista is a core and shell structure being built to house an aviation tenant in the north Virginia area. The purpose of this building is to consolidate 2 primary office buildings that are currently occupied by a single tenant to one single building. This single structure will create a main regional presence for the company near the nation's capital. According to the Washington Business Journal, the move that this company is undertaking is entirely keeping with their commitment to accelerate change in order to manage costs, reduce overhead, improve productivity, and increase competitiveness for growth. The consolidation will allow for the company to save in costs (Plumb, 2010).

Although saving money was a main aspect to the company, the owner's main crucial points are quality and time. The building will be occupied by important tenants for furthering the research of aviation design and to ensure safety and security, the building is equipped with maximum security. This increased security boosts the price of the project but keeps the future tenant happy. The other aspect that the owner requested was that the building finishes on time or before the project deadline. To accomplish this, many stake holders had to work together to ensure the project was sequenced correctly and remained on track. These stakeholders include the civil roadwork crews to complete the road around the perimeter of the building upon the time of completion, government buildings surrounding the space, air and transportation officials to approve the height restriction on the building, and the owner to complete the project with the intent of making the future client happy. To see the key dates of this project, reference the square foot cost breakdown slide within the report.

An interesting fact about the original plot of land was that it was in the design phase for quite some time, but not for the pure use of an office building. The northern Virginia region originally had the plan to keep this land as a mixed use development containing residential, office, and retail space. Then, according to a local government official, the future company pleaded for the space to be a single use office building. By having a large office building in this location, the area would solidify the presence of a corporate entity. The local government officials accepted the request in return that the company to occupy the building achieves LEED silver with 60 points, install a Capital Bike Share Station, improve the design of the landscaping around the sites edges, contribute $15,000 to a special transportation mitigation fund, and allow public access to the lawn area. The company accepted the requests and the building process began.

After the building began to go through the design phase, James G. Davis Construction (Davis) was brought in at when the construction documents were about 90% completed. Upon entering the Design phase, Davis was asked to look over the drawings and specs and assist the process by finding alternatives to the project's means and methods by undergoing value engineering. This makes Davis the consultant to the owner in the design and preconstruction phase and can result in numerous problems being solved prior to finding them in the field. This process saves both time and money, but it must be remembered that the team was brought in at 90% so only a limited amount of value engineering could be done.

The actual project delivery method for this project was CM at risk with guaranteed maximum price. This should technically be called a GC at risk with a GMP, since Davis self performs work. In a CM at risk with a GMP, the CM (Davis) holds the subcontracts and assumes risk for cost overruns. Davis also works in a partnership with the owner and the architect in this delivery system, and allows for the owner to have an early maximum price for the project.

The Davis team that was assigned to Memorial Vista put the owner and their satisfaction first in the hopes of continuing the work with the future client. Safety was always the first thought on the job site, where numerous tool box talks and safety meetings were held weekly. The team seen in the side show performs the task of being the general contractor for this site and ensures the schedule and the cost is on track for completion.

The original site had an extremely complex existing utilities web below ground. This is due to the location in northern Virginia. The project schedule was designed to work around the conflicts in the existing utilities and their relocation to allow for Memorial Vista to be put in place.

When the project began in the demolition phase, the first step was to check the old industrial warehouses for asbestos. Upon finding it in some locations, the Davis team then called in an asbestos abatement team to remove the toxin before the demolition could commence. Since Davis accounted for the asbestos abatement in both the schedule and in the estimate, no real large problems were encountered in the demolition phase.

During the excavation phase, Davis used permanent soldier piles were used with wood lagging. Wood walers were used in two locations of the building, those being the level one and two of the underground parking garage in the south wing. These walers are structural elements which are attached to the top of the soldier piles for stability and support. The owner also requested that the entire site be excavated to the lowest excavation to ensure there were no contaminated soils. After finding none, the soil would then have to be replaced anywhere where the foundation was not going. To prevent ponding in the bottom of the excavation pits, pumps were used to remove any water.

Once under construction, the focus was on the concrete core of the building in both the superstructure and substructure. The slabs were primarily flat plate slabs with drop panels as the columns and were laced with rebar. Upon the pouring of the concrete for the actual slabs, one of the two tower cranes on site hoisted a bucket of concrete to the proper location. The forms for the decks were made through the use of Peri SKYDECK panels that easily allowed for quick and safe installation of formwork. After the concrete cured as per the request of the specs and structural engineer, the drophead is released with a hammer blow which causes the formwork (panels and beams) to drop 60 millimeters. In both the Lobby and Multipurpose Room, the structural engineer called for post tensioning to take place to allow the slabs to span large distances with minimal support from below. This post tensioning added to the concretes strength in tension and allowed the slab to be able to handle its load that it will receive in the future.

As the structure was being crated, anchors and bolts were formed into the slabs as they were being poured to allow the façade of curtain walls, precast panels, and metal panels to be directly fastened to the structure. Within the façade, there are seven different types of curtain wall, those including both point supported glass and curtain wall with aluminum trim. Precast panels border parts of the curtain wall on the structure and are connected to the structural of the building through the use of shims to get the panel in place and then welded or bolted to the predetermined anchors. Metal panels also accompany the structure and are also welded and or bolted directly to the structure. Once this façade was completed, the building was considered water tight.

Within the building is the mechanical system that is comprised of two air handling units on every floor of the building (one being in each wing) and VAV’s that are supplied by the air handling units. On the roof of the structure are two chillers, two cooling towers, a heat exchanger, three chilled water pumps, and three condenser water pumps. This means that the

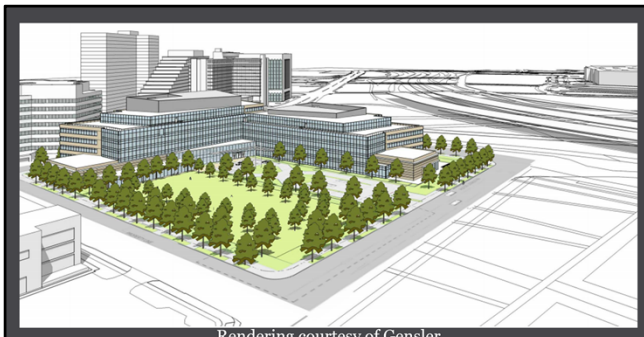
buildings system is a water to air system with two closed loops. One of the loops in the mechanical system is condenser water with the cooling tower, and the other loop being the chilled water circulation to the air handling units on every floor. The pumps are used to circulate the liquid in the loops, and the heat exchanger transfers heat energy from the condenser water to the chilled water in a recycling fashion. The chiller is also used in the transmission on heat to get the water to the desired temperature that the air handling units are calling for.

Along with the mechanical system is the fire suppression system. This is primarily wet standpipes with CPCV piping running to each sprinkler head on every floor. These wet standpipes are on every level of the building including the penthouse level, equipment rooms, elevator equipment rooms, and electrical rooms. Once the glass filament in the sprinkler head shatters due to heat, and the smoke alarms have detected the presence of smoke, the water rushes out of the pipes to attempt to put out the fire. In places where the space is not heated, such as the garage, a dry standpipe is used, where it is filled with compressed air until a sprinkler goes off and water is rushed through the system. These unheated spaces have dry stand pipes filled with compressed air to prevent the freezing of water within them in extreme temperatures.

The electrical system in this building is fed from three transformers at 3750 kVA that run to 3 switchboards at 4000 A on the first floor of the Parking Garage. Bus-ways then runs the feeders up to each floor where they meet the panel boards. There are then two panel boards per floor (one in each wing of the building). In the case of an emergency, there is a 2500 A emergency distribution panel that is accessed through the use of automatic transfer switches. For the short amount of time the systems are down, batteries are used until the diesel generator kicks in. Here, the generator powers the 2500 A emergency distribution panel that supplies the fire pump, life safety loads, and 2500 amps for standby loads.

Davis performed an original estimate that came up with the construction cost of the building to be $63 million with an average cost of $110 / S.F. After my calculations using R.S. Means, I found the building cost to be $46.1 million and $81 / S.F. This cost breakdown can be seen on the project cost evaluation slide within the report. My estimate was significantly lower due to the fact of the complexity of this building. Memorial Vista is simply being constructed as a core and shell building, but the security and telecommunications within are one of a kind. The owner has strict requirements regarding blast-proof wall and security for the building, along with the request of 14 total elevators in just over a 300,000 square foot building. These demands are unlike the average needs for an office building in northern Virginia.

Although the space is irregular in the demands that the owner requested, Davis was able to make a fairly accurate schedule. The schedule itself was designed to begin the construction process in mid-April of 2011 and have a set completion date in mid-October 2013. The schedule is broken up into the north and south wing to allow for linear scheduling to take place for the subcontractors. This will allow for continuous work and increased productivity. As of now, Davis on track of its completion date and remain under budget, proving to complete the project in a successful fashion. The next step with Memorial Vista is to perform the interior fit out and bid out the work to be completed for the 500+ employees of the aviation firm to occupy and call the space home.



Rendering courtesy of Gensler

Memorial Vista

A North Virginia Office Building

William J. Gamble | 5th Year – Construction Option | Tech Assignment 1

Client Information

Aviation Pioneer to occupy office building
- Consolidation of 2 offices in near-by location

Original design (see directly right) was mixed use containing residential, office, and retail space.

http://www.arlingtonva.us/departments/Communications/PressReleases/page64304.aspx

Aviation tenant pleaded to have space in exchange for:
- Achieving a minimum of LEED Silver
- Installing a Capital Bike Share Station
- Improving the design of the bordering landscape
- Contributing $15K to a special transportation mitigation fund
- Public access the lawn area

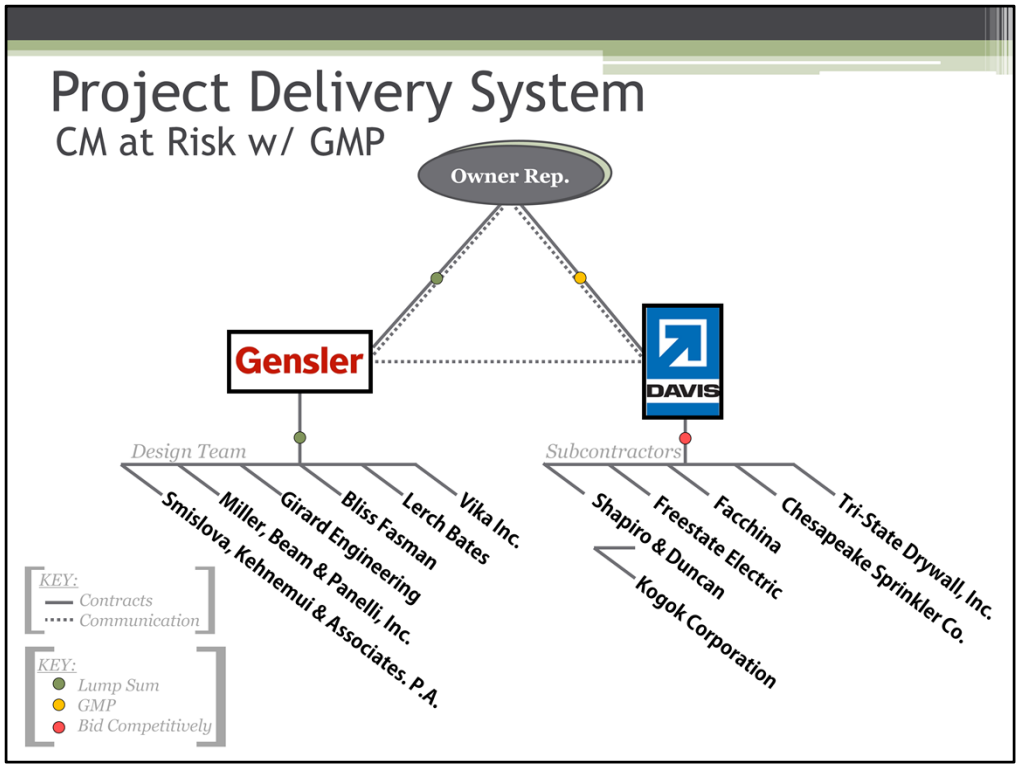
Rendering courtesy of Gensler

High cost, high quality project where the schedule and quality are put at the forefront

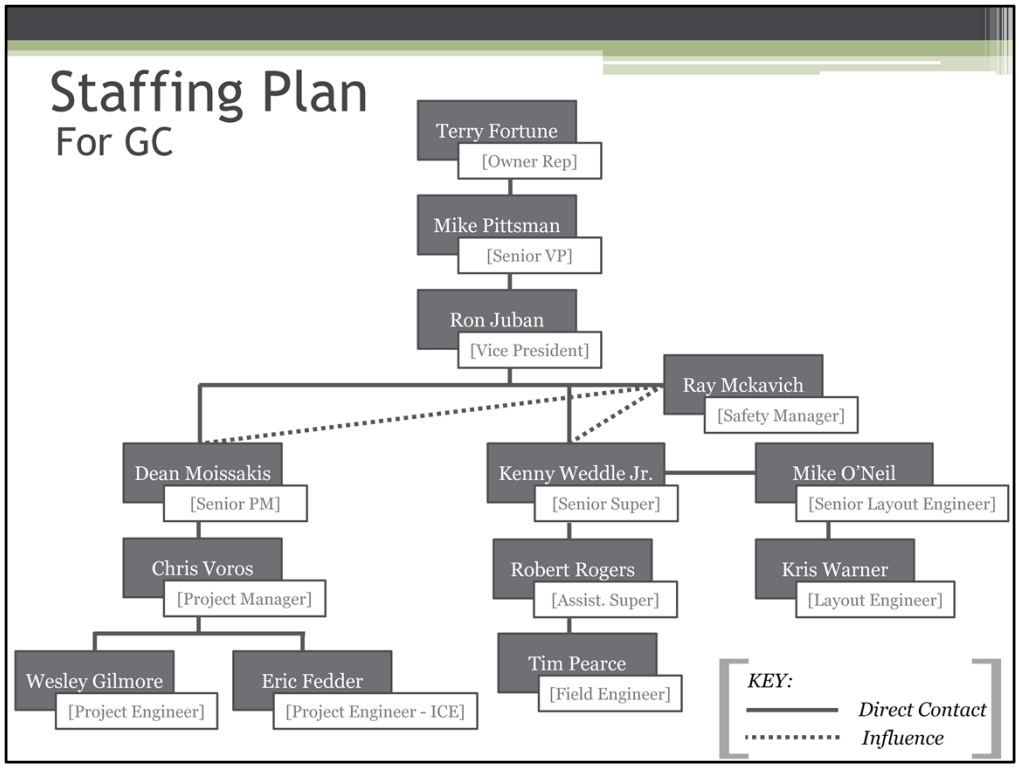
- Future client to this building has to remain anonymous due to the request of the realtor at this time.
- Building is a core and shell building being built to house an aviation tenant in the northern Virginia area.
- This building will eventually be used to house over 500 employees upon completion.
- Purpose of this building is to consolidate 2 primary office buildings
- This building will create a main regional presence for the company near the nation's capital.
- According to Tierney Plumb from the Washington Business Journal, the move that this company is undertaking is entirely keeping with their commitment to accelerate change in order to manage costs, reduce overhead, improve productivity, and increase competitiveness for growth. The consolidation will allow for the company to save in costs.
- The owner's main crucial points are quality and time. The building will be occupied by important tenants for furthering the research of aviation design and to ensure safety and security, the building is equipped with maximum security. This increased security boosts the price of the project but keeps the future tenant happy. The other aspect that the owner requested was that the building be done on time or before the project deadline.
- Many stake holders worked together including the civil roadwork crews to

complete the road around the perimeter of the building upon the time of completion, government buildings surrounding the space, air and transportation officials to approve the height restriction on the building, and the owner to complete the project with the intent of making the future client happy.

- The northern Virginia region originally had the plan to keep this land as a mixed use development containing residential, office, and retail space. Then, according to a local government official, the future company pleaded for the space purely for the use of their office building. The local government officials accepted the request in return that the company to occupy the building achieves LEED silver, install a Capital Bike Share Station, improve the design of the landscaping around the sites edges, contribute $15,000 to a special transportation mitigation fund, and allow public access to the lawn area.

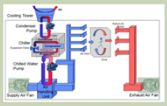


- Davis Construction was brought in when the construction documents were about 90% completed in order to perform in a design-assist role for the project.
- Davis was asked to look over the drawings and specs and assist the process by adding alternatives to the project by performing value engineering. Since Davis was brought in at a later time, only a limited amount of alternatives were found that would not greatly impact the schedule all while lowering the costs of the project. This makes Davis the consultant to the owner to the design and preconstruction phase and can result in numerous problems being solver early on rather than stumbling upon them in a project and wasting both time and money.
- The actual project delivery method for this project was CM at risk with guaranteed maximum price. This should technically be called a GC at risk with a GMP, since Davis self performs some work.
- In a CM at risk with a GMP, the CM (Davis) holds the contracts to the subs and assumes risk for cost overruns.
- Davis also works in a partnership with the owner and the architect in this delivery system, and allows for the owner to have an early maximum price for the project.
- Kogok Corporation is below Shapiro and Duncan due to the fact that the mechanical work for the building was subcontracted out.
- For this projects, the architect was paid though a lump sum and then a lump sum was used to pay the design team. The subcontractors under Davis, on the other hand, were bit competitively.



- The organization chart above shows that the owner's representative at the top of the chart, above the Davis employees because if the owner is not happy, than Davis is not performing their job properly. This being said, Davis has a large portion of their work as returning client in which they have done jobs for in the past. If an opportunity is ruined in the present, Davis runs the risk of not getting that client again in the future, and this hurts their business.
- Communication takes place throughout the Davis team to ensure the job gets done quickly and efficiently, with safety as the number one concern.
- The reason the layout engineers are placed under the senior superintendent is due to the fact they report to Kenny when they are performing there job.
- The integrated construction engineer (ICE) or BIM specialist is no longer on this job, but their original duty was to help organize and set up the virtual model in the early phases of construction.
- The field engineer on this project acts as a project engineer, but more focused on the field side of things. They are located in the field and act under the supervision of the superintendents on the project.
- Upper management for this project is not on the job the full time the project is in the construction phase, they are their to report to monthly, where project schedules and cost break downs are shared to see if the project is on time and under budget.

Building Systems Summary
Memorial Vista

Demolition	➢ Inspection found that there was small amounts of asbestos ➢ Demo did not take place until asbestos abatement ➢ Accurate scheduling and estimating	 Courtesy of Davis Specs
Cast in Place Concrete	➢ Flat plate slab with rebar throughout ➢ Multipurpose Space and Lobby use post tensioning in the slabs above due to the wide span unsupported ➢ Peri SKYDECK panel slab formwork with drop heads for formwork ➢ Crane and bucket placement (2 separate tower cranes)	 Courtesy of SKYDECK website
Precast Concrete	➢ Architectural concrete makes up part of the façade ➢ Cast off site within 500 miles for LEED credits ➢ Using one of the 2 tower cranes, the panels are lifted into place and shimmed to the proper placement before being welded or bolted directly to the structure	 Courtesy of Davis Construction
Mechanical Systems	➢ 2 Mechanical rooms with 2 AHUs / floor branching out to VAV units ➢ Water to air system with 2 closed loops – one for condenser water, the other for the chilled water. ➢ 2 Cooling towers, 2 chillers and 1 heat exchanger on penthouse level ➢ Dry stand pipes in unheated space and wet standpipes in building made of CPVC	 Courtesy of Berkley Website

Demolition

- Demolition of 7 existing buildings that were once mostly industrial warehouses, and one motel.
- It was found that there was asbestos in a few of the old industrial warehouses.
- Once the toxic material was removed, demolition was able to take place.
- Davis Construction did take this into consideration upon their original estimate and accounted for the abatement time when forming the schedule so no major problems were encountered in this process.

Cast in Place Concrete

- Slabs of this structure are cast in place concrete with rebar throughout them.
- Post tensioning of the concrete was done above the Multipurpose Space and Lobby
- The superstructure was done with Peri SKYDECK panel slab formwork. This is composed of dropheads that temporarily support the aluminum formwork above. After the concrete has cured, the drophead is released 60 millimeters and moved to the next location.
- Using SKYDECK is easy and quick and the forms can be reused as the building goes up in elevation.
- To pour the actual concrete, two tower cranes were used on the job. One had a hook height of 102’ and the other 116’. The smaller tower crane was a Potain

MDT 412 and was placed in the center of the underground parking garage ramp, where the larger one was a Pecco SK 400 and was placed on the perimeter of the building of the south wing.

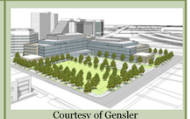
Precast Concrete

- Precast architectural concrete is used to accompany various parts of the buildings façade.
- The concrete was put in place with the use of the cranes stated above in the cast in place concrete section.
- These panels were designed, as per the spec and should be able to withstand the maximum inward and outward wind pressure as required by the 2006 Virginia Uniform Statewide Building Code.
- The precast concrete panels range from ten to thirty feet long with an average thickness of about an eighth of an inch. When installing the precast panels, it is required that they be accompanied by temporary bracing to maintain level. Once the units are set, shims are used to get the detailed joint dimensions and then the panels are welded or bolted directly to the buildings structural frame.
- precast panels are formed off site and are manufactured and travel less than 500 miles to receive LEED credits.

Mechanical System

- Two air handling units per floor in two separate mechanical rooms, one unit serving each wing of the building. These then serve variable air volume units throughout the floor up in the ceiling plenum.
- Air handling units can carry an average demand load between 20,000 and 30,000 CFM to their requested locations as needed.
- Two cooling towers, two chillers, three chilled water pumps, three condenser water pumps, and a heat exchanger on the Penthouse level of the building.
- Closed loop system with 2 loops. One is with the cooling tower and condenser water loop and the other with the chilled water loop and the air handling units on each individual level of the building.
- The fire suppression system within the building is a wet standpipe system with CPCV piping to all levels of the building including the penthouse level, equipment rooms, elevator equipment rooms, and electrical rooms. This system will be an automatic system with voice activated fire alarms upon the indication of smoke within the building.
- Within the garage, trash rooms, and other unheated areas will be a dry standpipe system to prevent the pipes from freezing in the winter.

Building Systems Summary
Memorial Vista

Electrical System	➢ 3 transformers at 3750 kVA that run to 3 switchboards at 4000 A on the 1st floor of the garage. ➢ Bus-ways run the feeders from the switchboards to the panel boards where there are 2 on each floor (one per wing) ➢ In an emergency there is a 2500 A distribution panel that is initiated through automatic transfer switches to allow the power to resume on.	 Courtesy of Davis Construction
Curtain Wall	➢ Scaffolding and cranes used to hang the curtain wall ➢ not allowed to exceed 0.06 CFM/sq. ft. of fixed wall area when testing air leakage ➢ There are 7 types of glass on this building grouped into pin supported and curtain wall glazing	 Courtesy of Gensler
Support of Excavation	➢ Entire site to be excavated to future depth to ensure there are no contaminated soils. ➢ Permanent soldier piles used with wood lagging ➢ Wood walers used on south wing of the 2 underground parking levels ➢ Pumps were used to remove water infiltration of the excavation	 Courtesy of Davis Construction
LEED Certification	➢ LEED Gold ➢ Striving for 60 points	DAVIS SUSTAINABILITY Courtesy of Davis Construction

Electrical System

- There are 3 transformers for this building at 3750 kVA that run to 3 switchboards at 4000 A on the first floor of the Parking Garage. Bus-ways then runs the feeders up to each floor where they meet the panel boards.
- There are two panel boards per floor (one in each wing of the building).
- Within each electrical/ mechanical closet on each wing of the building on every floor is also a transformer to step down the voltage from 480/277 V to 208/120 V.
- In the case of an emergency, there is a 2500 A emergency distribution panel that is accessed through the use of automatic transfer switches.
- When the power goes out, the building automatically switches over to battery units until the diesel generator kicks on.
- The generator is a 480 / 277 V, 3 Phase Breaker that supplies 2500 A emergency distribution panel that allows for a 100 A fire pump, 250 A life safety loads, and 2500 A for stand by loads to run during emergencies.

Curtain Wall

- There are three main types on curtain wall for this building. The first two make up a significant portion of the building in that the one type is 1 – 5/16” laminated Viracon vision glass. The second is a strip of 1 – 5/16” laminated Viracon spandrel glass. Both of these first two types of glass are accompanied by an aluminum trim at the gaps of each windowpane.

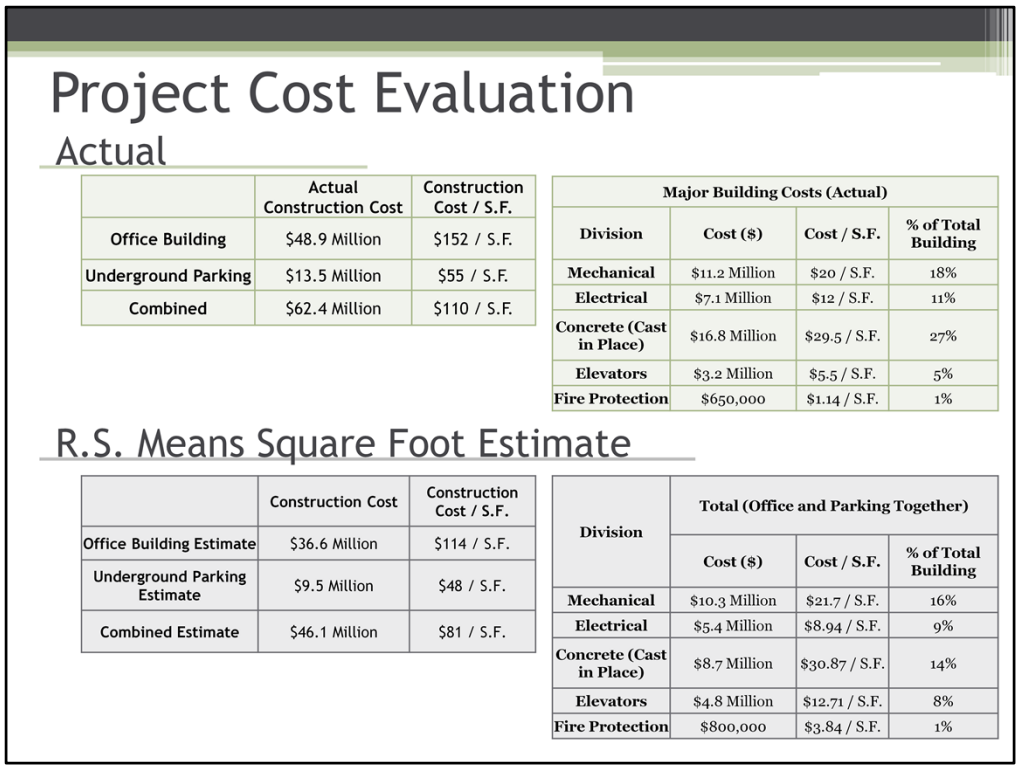
- The third type is point supported 1 – 3/8” low iron Pilkington Optawhite glass. This point supported glass is hung to complete the south entrance of the building.
- All three window types had to be designed, fabricated, and installed to with stand maximum inward and outward wind pressures required by the 2006 Virginia Uniform Statewide Building Code and strict measures wanted by the future tenant for security purposes.
- The first two types of curtain wall were manufactured within 500 miles of the site and assembled to allow for field adjustments and then they were anchored to the connection points to the perimeter cladding and structural framing.
- The pin supported curtain wall is made of an aluminum grid that is directly fastened the buildings concrete structure.
- All three types of glass are not allowed to exceed 0.06 CFM/sq. ft. of fixed wall area when testing air leakage. When dealing with wind loads, all types are also not allowed to deflect any more than 1/175 of its clear span, or ¾ of an inch. If taking both into account, the specifications require you use whichever is less.
- To perform the actual installation of the glass, the subcontractor will work their way around the perimeter of the structure until the completion. They do this through the use of scaffolding and the cranes.

Support Excavation

- The owner requested the entire site to be excavated to the depth that it will need to go in the future. This means that the north and south wing underground parking levels were dug, but then the wing to connect to the south wing in the future was also dug.
- This extra excavation was to the owners request to check for contaminated soils.
- Although none were found, the land that did not need to be excavated was then filled in.
- During the excavation process, permanent soldier piles were used with wood lagging.
- Temporary wood walers were used in two locations of the building, those being the level one and two of the underground parking garage in the south wing.
- The site used two pumps to remove any water that ponded at the bottom of the excavation.

LEED

- The building is targeted to reach LEED gold with 60 points as the target.
- The northern Virginia town in which this land is a part of requested that the building being built on it was to be a minimum of LEED silver (see Client Information Slide). The team decided to bump the goal to gold for this project to exceed the wants of the town.



- Office building space has a total square footage of 322,725 S.F. and a perimeter of 1710 L.F.
- The underground parking garage has a square footage of 247,530 S.F. and a perimeter or 1600 L.F.
- The total Construction Cost of the building is then around $63 Million where and average cost of $110 per square foot was found for both the office building and garage.
- Used R.S. Means and broke the building estimate into a 5 – 10 story office building and a Garage (underground parking).
- Two estimates were done and then added together.
- It is seen that the cost per square foot is relatively close for each, but the overall cost is almost $20 million less. This is because of the fact the building has an extremely high security system that is hard to take off in R.S. Means.
- The break down of divisions are similar for mechanical and electrical, but concrete it off by almost $8 million dollars. This is due to the fact that there is post tensioning in some of the concrete and the forming system that Davis used was expensive to rent but allowed for a the floor slabs to be flat plate slabs with drop panels and these slabs were able to be poured quickly accurately and safely.
- The reason the mechanical and electrical estimates are fairly close to the actual costs is because the building is simply a core and shell office building, meaning it is relatively average in that aspect, but the electrical in either of these costs does not include the telecommunications and security costs, which would significantly boost the overall construction cost of the building.
- The elevators are a little higher in the estimate than the actual cost due to the fact that in

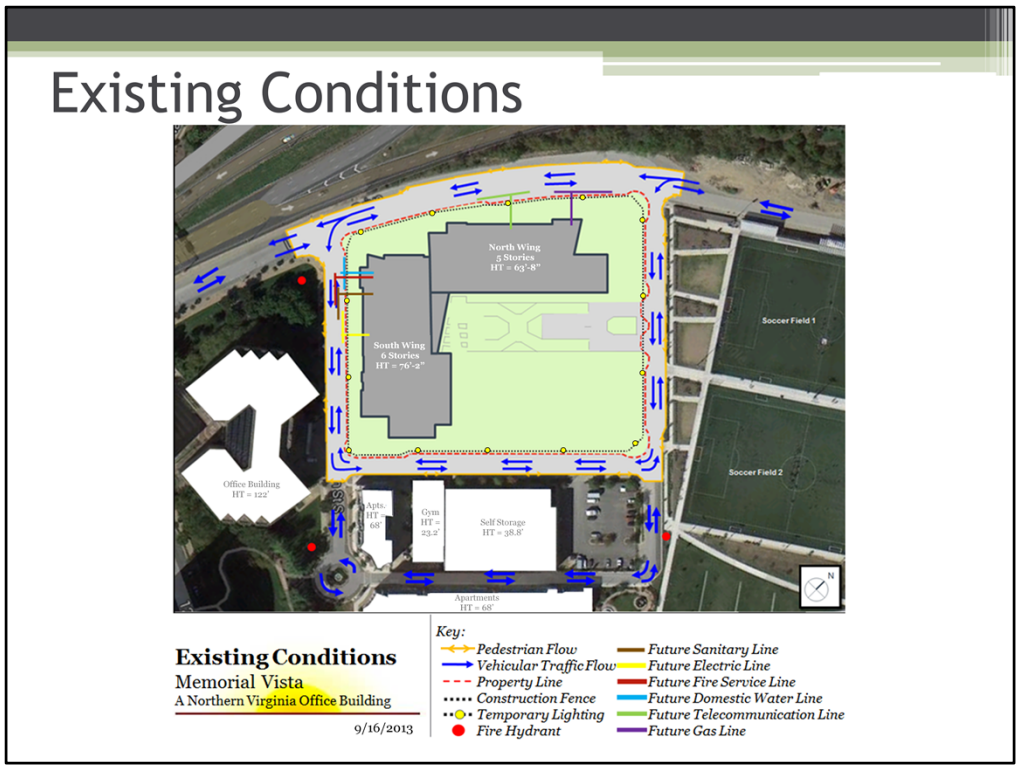
the estimate I specified that the building and garage have 14 elevator throughout.

- Fire protection is a little higher than the actual cost due to the fact that the building used CPVC piping to cut down on costs. This was found cost effective in the design phase when Davis was brought on board.

Existing Conditions

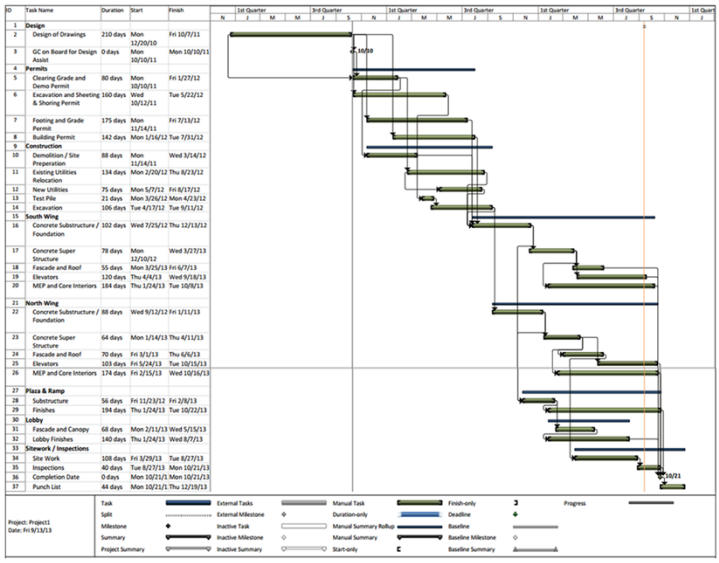
Original Site with the Existing Utility Overlay

- The original site's existing conditions are extremely complex due to their location in northern Virginia.
- The road just north of the buildings to be demolished was being removed and the utilities below had to be relocated to begin excavation on the project.
- Due to the sites history as an industrial warehouse site, the owner requested that the soil be excavated to very large depths to ensure there was no contaminated soil.



- This site is surrounded by a semi-busy roadway and pedestrian and vehicular travel are still permitted around the site.
- The pedestrian side walk is on the opposite side of the road of construction, which allows for a passerby to be safe and eliminates the use of overhead protection.
- During the relocation phase of the existing utilities (seen in the previous slide) the new utilities that would be needed for the new office building were set up and ready to be connected to when the building was ready.
- The temporary lighting is located along the site fence at the building property's perimeter. This allows for pedestrians to have a well lit space at night and the site fence keeps out people that are not permitted to be on the job site.
- There are neighboring buildings on two of the four sides of the construction of this building. On the southwest side is an office building, and on the southeast side is an apartment, a self storage facility, and a gym. These locations are accessed daily and the roadways were required to remain accessible.
- This site will also include drainage plans put together as per the request of the civil engineer to prevent runoff or contamination from the project site.

Project Schedule Summary



ID	Task Name	Duration	Start	Finish
1	**Design**			
2	Design of Drawings	210 days	Mon 12/20/10	Fri 10/7/11
3	GC on Board for Design Assist	0 days	Mon 10/10/11	Mon 10/10/11
4	**Permits**			
5	Clearing Grade and Demo Permit	80 days	Mon 10/10/11	Fri 1/27/12
6	Excavation and Sheeting & Shoring Permit	160 days	Wed 10/12/11	Tue 5/22/12
7	Footing and Grade Permit	175 days	Mon 11/14/11	Fri 7/13/12
8	Building Permit	142 days	Mon 1/16/12	Tue 7/31/12
9	**Construction**			
10	Demolition / Site Preperation	88 days	Mon 11/14/11	Wed 3/14/12
11	Existing Utilities Relocation	134 days	Mon 2/20/12	Thu 8/23/12
12	New Utilities	75 days	Mon 5/7/12	Fri 8/17/12
13	Test Pile	21 days	Mon 3/26/12	Mon 4/23/12
14	Excavation	106 days	Tue 4/17/12	Tue 9/11/12
15	**South Wing**			
16	Concrete Substructure / Foundation	102 days	Wed 7/25/12	Thu 12/13/12
17	Concrete Super Structure	78 days	Mon 12/10/12	Wed 3/27/13
18	Fascade and Roof	55 days	Mon 3/25/13	Fri 6/7/13
19	Elevators	120 days	Thu 4/4/13	Wed 9/18/13
20	MEP and Core Interiors	184 days	Thu 1/24/13	Tue 10/8/13
21	**North Wing**			
22	Concrete Substructure / Foundation	88 days	Wed 9/12/12	Fri 1/11/13
23	Concrete Super Structure	64 days	Mon 1/14/13	Thu 4/11/13
24	Fascade and Roof	70 days	Fri 3/1/13	Thu 6/6/13
25	Elevators	103 days	Fri 5/24/13	Tue 10/15/13
26	MEP and Core Interiors	174 days	Fri 2/15/13	Wed 10/16/13
27	**Plaza & Ramp**			
28	Substructure	56 days	Fri 11/23/12	Fri 2/8/13
29	Finishes	194 days	Thu 1/24/13	Tue 10/22/13
30	**Lobby**			
31	Fascade and Canopy	68 days	Mon 2/11/13	Wed 5/15/13
32	Lobby Finishes	140 days	Thu 1/24/13	Wed 8/7/13
33	**Sitework / Inspections**			
34	Site Work	108 days	Fri 3/29/13	Tue 8/27/13
35	Inspections	40 days	Tue 8/27/13	Mon 10/21/13
36	Completion Date	0 days	Mon 10/21/13	Mon 10/21/13
37	Punch List	44 days	Mon 10/21/13	Thu 12/19/13

- This is a basic project overview, where the project breaks ground in mid April and is completed in mid October 2013.
- One of the main things that was done in this schedule was break the phases if construction into the North and South Wing. This allows for the schedule to overlap and allows for the sub contractors to continuously work on the job site and improve efficiency.
- The owner of this job required the deadline of the project to be a bold point and had a contract stating a steep cost penalty for going over the completion date.
- As of now Davis is on track to finish on time and under budget.
- The next step in the project is to have the interior fit out bid out and then completed as a separate project so the company can occupy their new space.

Work Cited

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*Note: Some of the words have been removed due to the fact the article includes information on the location or actual name of the building and the owner wishes to keep this information private.