2011

TECHNICAL ASSIGNMENT ONE

VIDA FITNESS CENTER, WASHINGTON D.C.

Clara K Watson
Construction Option
Faculty Advisor: Dr. Leicht
9/23/2011

VIDA™ FITNESS

EXECUTIVE SUMMARY:

The following technical assignment is a comprehensive report detailing the existing conditions under which the VIDA Fitness Center addition and renovation was constructed in Washington D.C. This report analyzes both the restrictions and the parameters that affected the design and construction processes on the project and expounds upon both the building and the project history.

Owner David von Storch is launching his new flagship building at 1612 U Street which will include the largest of his VIDA Fitness Centers, along with a new high end restaurant, Aura Spa, Bang Salon, and office space for his company, Urban Adventures.

The 60,370 square foot project includes a 10,920 square foot three-story addition and the renovation of an existing 49,450 square foot building. Located in the center of D.C., the restraints of a restricted site and tight schedule coupled with unforeseen hurdles that come with renovating a 100+ year old building created a unique and challenging project for Forrester Construction. In addition, the expansion began construction while the building was still occupied, as the existing Results Gym remained open and still had an active lease. When the gym closed and construction consumed the entire facility, parts of the building began to open in phases. Bang Salon was first to open, followed by two separate phases of the VIDA Fitness Center, with plans for the restaurant and spa to open in May 2012.

After a detailed analysis of the cost breakdown for the project, it was found that the actual cost of construction ($4,614,407) was higher than both the Square Foot Estimate ($2,307,000) and the Assembly Estimate ($3,396,938). The Square Foot Estimate was the lowest of the three; this is likely due to the generalization of the estimate. Because of the Owner's high standards on this project and because it is a fitness center, a higher-end mechanical system was installed. Though the Assembly Estimate accounts for more of the mechanical system specifics than the Square Foot Estimate, the actual construction cost is still higher than both estimates. Once again, this is likely due to the fact that high-end systems were installed, along with high-end fixtures.

Overall, the analyses performed on the project parameters provided little to criticize. The preconstruction and construction management processes utilized on the project are thoroughly discussed in the following report and include an overview of the project schedule, building systems, cost estimations, site plans, local conditions, client information, project delivery system, and staffing plan.

TABLE OF CONTENTS:

PROJECT SCHEDULE SUMMARY:

The Project Summary Schedule can be found in Appendix A.

Overview

The project schedule was one of the main driving factors for this project, due to the fact that the Owner lost approximately $100,000 for every week that the Fitness Center did not open. The extremely tight project schedule was made even more stressful when unforeseen structural conditions delayed the project. The Project Summary Schedule shown in Appendix A is a broad, sequential summary of the key activities throughout the project. This schedule does not reflect any delays during construction, but rather depicts the original projected project schedule.

This summary schedule abridges four of the main stages of the project:

- Procurement and Preconstruction
- New Addition Construction
- Existing Building Construction
- Project Close-Out

The tasks in these phases are almost all in sequential order. The delay of one task will push all those in that sequence back, delaying the project schedule. Overlapping shown between tasks is critical to the project being completed successfully on time.

Foundation

Minimal demolition and preliminary site work took place in preparation for the foundation of the new addition. The existing concrete parking slab had to be demolished before micro piles could be installed and excavation for the pile caps could commence. The foundation work for the existing building began several months after construction began on the new addition. This work included excavation for enlargement of column footers.

Structure

The structure for the new addition followed the completion of its foundation, and included the framing, reinforcing, and placement (FRP) of beams, columns, and slabs with cast-in-place concrete. Floor slabs also included post-tensioning. The structural upgrades on the existing building included the enlargement of columns and the addition of roof steel. This work took place after the active tenant vacated the building, which was several months after structural work began on the new addition.

Enclosure

The enclosure for the new building addition began shortly before selective demolition started on the existing building. This comprised of curtain wall steel installation along with CMU block and brick veneer placement. The existing building enclosure required repointing in several places,

along with window replacement. This window replacement took place while the storefront glass was installed on the new addition.

Finishes

The interiors and finishes task on the project schedule took slightly over three months to complete. High end finishes coupled with many changes in the finish schedule made this stage of the project critical for successful completion. The finishes for both the new addition and the existing building were completed simultaneously, as the two buildings were synonymous at this stage of the project.

BUILDING SYSTEMS SUMMARY:

The Building Systems Checklist shown below summarizes the crucial building systems for both the existing building and new addition for VIDA Fitness. The building system summaries that follow detail the key design and construction facets of the project.

BUILDING SYSTEMS CHECKLIST				
Work Scope	Existing Building		New Addition	
	Yes	No	Yes	No
Demolition Required	X		X	
Structural Steel Frame	X			X
Cast in Place Concrete	X		X	
Precast Concrete		X		X
Mechanical System	X		X	
Electrical System	X		X	
Masonry	X		X	
Curtain Wall		X	X	
Support of Excavation		X		X

Demolition

Approximately 3,640 square feet of an existing concrete slab on grade that served as surface parking was demolished for the new three-story addition located in the alley on the East side of the existing building. Selective demolition also took place throughout the existing building, and included the demolition of existing CMU and metal stud walls, floor finishes, and concrete stairwells.

Finally, approximately 360 square feet of concrete floor slab were demolished per floor to allow for the construction of a new monumental steel stairwell that would rise through all four floors and culminate in the new roof penthouse. The existing 700 square foot penthouse also had to be demolished before construction could begin on the new roof or new penthouse. This structure was load bearing masonry walls.

No lead paint or asbestos was found during the demolition on this project.

Figure 1: Tower Crane, Picture Courtesy of Luis Ortiz

Structural Steel Frame

Though neither the existing structure nor the structure for the new addition is steel, new structural steel was added on every floor to support the new monumental stairwell described above, which was also fabricated out of structural steel. The opening for the stairwell is supported with W18's, while the stairwell itself is constructed of varying sizes of HSS. Additional W12's and W14's were used to reinforce the two existing stairwells in order to support the increased dead load on the roof due to the addition of the pool on the roof.

To ensure the addition of the pool did not infringe too heavily on the floor-to-floor height below it, a new roof was constructed approximately two feet above the existing roof on the existing building only. This new roof of structural steel framing consists of W12's, W14's, and W18's, which were embedded into the existing load bearing parapet masonry walls and rest on steel embedded bearing plates.

Figure 2: Existing Stripped Column, Courtesy of Luis Ortiz

Two cranes were used at differing times on the project to fly steel to the respective floors. The first was a 17.5-ton tower crane and the second was a 35-ton city truck crane. To see the location of these cranes, refer to Construction Site Plan Phase 2: Superstructure and Existing Roof in Appendix E. The tower crane can be seen in Figure 1 above.

Cast in Place Concrete

The existing building structure consists of concrete columns, beams, and two-way slabs. This structure received some upgrades due to the additional dead load of a pool on the roof of the building. Several of the existing concrete columns were stripped down to their outer surface of spiral ties and rewrapped with carbon fiber or concrete after additional reinforcing had been added. A stripped column can be seen in Figure 2. In addition to these upgrades, all of the existing footings were enlarged to increase their load bearing capacity to the new weight.

The three floor new addition was constructed of concrete columns and beams with post-tensioned slabs. This system rests on a foundation of grade beams, pile caps, and finally piles.

All of the cast in place concrete was placed directly from the concrete truck or pumped to the desired location. The cast in place columns were formed with spiral tubing, whereas the concrete beams and slabs were formed with plywood. The footers, grade beams, and pile caps did not require any formwork.

Mechanical System

There are two larger mechanical rooms accompanied by eight smaller rooms, all located in the existing building. One of the larger main rooms is located on the ground floor, and the other is located on the fourth. Of the remaining eight rooms, four are located on the second floor and four are located on the third floor.

The primary mechanical system is a mixed water and glycol Variable Air Volume (VAV) system. Ventilation air comes from the heat recovery makeup air unit located in the fourth floor mechanical room. Air is preconditioned within this unit with the enthalpy wheel before being distributed to and conditioned in one of the 18 Air Handling Units (AHUs) in the four pipe system located throughout the building. These small AHU's are essentially fan coil units. A 310 GPM chiller is located in the fourth floor mechanical room and affords the AC system with chilled water. An 850 MBH gas-fired hot water boiler supplies the hot water for the system. Because the structure is exposed and there is no plenum space to utilize for return air, the system utilizes both supply and return ducts.

Both the new addition and the existing building received a new wet pipe sprinkler system due to its reliability and simplicity.

Electrical System

The electrical system ties into the grid from the existing connection, a 208/120, 3-phase, 4 wire, 1600 amp feed supplied by Pepco. Because a back-up generator was not included for this particular project, emergency fire alarms were specified to have battery back-ups.

The majority of the lighting in the fitness center consists of HID downlights, with specialty LED lighting in certain areas for accenting.

Masonry

Typical for buildings built in this area in the late 1800s, the existing building at 1612 U Street had exterior load bearing masonry walls (approximately 1.5 feet thick), though most of the load is still carried by the structural concrete columns.

The masonry walls on the addition are comprised of standard brick veneer with an air cavity, rigid polystyrene insulation, and an air/vapor barrier. These are attached to 8" x 8" x 16" CMU blocks that tie into the precast floor slabs. These 8" CMU walls are reinforced every 24" o.c. and fully grouted. The brick veneer is tied into the masonry with steel lintels at all interfaces.

Free standing scaffolding was used on the East and South sides of the building for masonry construction. The location of this

Figure 3: New Addition Curtain Wall, Photo Taken by Clara Watson

scaffolding can be seen in the Construction Site Plan Phase 3: Finishes and Existing Roof in Appendix E.

Curtain Wall

Because the existing building's exterior walls were constructed of load bearing masonry, the only curtain wall on the project was located on the North and South façades of the new addition. These elevations are almost entirely glass storefront with aluminum framing (shown in Figure 3 on the previous page), with HSS to support the curtain wall itself. A glass folding Nana wall is located on the front of the new addition on the ground floor level, and will eventually be able to be opened for the new restaurant.

After the steel contractor installed the HSS, these storefront windows were installed by a glass subcontractor on a boom lift and were designed by the structural engineer for the project, Rathgeber Goss Associates.

PROJECT COST EVALUATION:

The RS Means Square Foot Cost Estimate and the RS Means Assembly Cost Estimate can be found in Appendix B and Appendix C, respectfully.

Project Parameters

PROJECT PARAMETERS			
Parameter	Existing Building	New Addition	Total
Square Footage	49450	10920	60370
Number of Floors	4 + Penthouse	3	5
Footprint (SF)	9890	3640	13530

Construction Costs vs. Total Project Costs

The cost information shown below is based upon a cost estimate afforded by Forrester Construction and does not represent actual project bid costs. The Construction Costs (CC) shown in the table below exclude site work, land costs, contingency, permitting, and contractor fees. To calculate the cost per square foot, the total square footage was taken from the Project Parameters table above.

ACTUAL PROJECT COSTS	
Parameter	Existing Building
Construction Costs (CC)	$ 8,891,768.00
CC/SF	$ 147.29
Total Project Costs (TC)	$ 12,355,031.00
TC/SF	$ 204.66

Building System Costs

The following is a summary of the construction costs of the major building systems.

ACTUAL MAJOR BUILDING SYSTEMS COSTS		
System	CC	CC/SF
Plumbing	$ 726,895.00	$ 12.04
Fire Protection	$ 119,350.00	$ 1.98
Mechanical	$ 2,217,219.00	$ 36.73
Electrical	$ 1,135,570.00	$ 18.81
Structural Concrete	$ 135,046.00	$ 2.24
Structural Steel	$ 280,327.00	$ 4.64

Cost Comparison

In order to provide an accurate comparison of the three estimations, the construction costs must be compared rather than the total costs because RS Means excludes site work, design fees, contingencies, etc. The table below compares the actual total construction costs with the construction costs of the RS Means Square Foot Estimate. The square foot estimate is a little over $2M lower than that of the actual construction cost. This could be due to a number of reasons, but can most likely be attributed to the fact that the gymnasium square foot cost data provided by RS Means does not include the high-end finishes that the VIDA Fitness Center has (not to mention it excludes the saunas and spa).

Actual Construction		RS Means SF	
Total Cost	CC/SF	Total Cost	CC/SF
$ 12,355,031.00	$ 204.66	$ 10,695,000.00	$ 177.16

The table below summarizes the total construction costs for the mechanical, electrical, plumbing, and fire protection systems (full break-downs of the RS Means estimates can be seen in Appendix B and Appendix C, respectively). As shown, the Square Foot Estimate is the lowest of the three. This is likely due to the generalization of the estimate. Because of the Owner's high standards on this project and because it is a fitness center, a higher-end mechanical system was installed. Though the Assembly Estimate accounts for more of the mechanical system specifics than the Square Foot Estimate, the actual construction cost is still higher than both estimates. Once again, this is likely due to the fact that high-end systems were installed, along with high-end fixtures.

Actual Construction		RS Means SF		RS Means Assembly	
Total Cost	CC/SF	Total Cost	CC/SF	Total Cost	CC/SF
$ 4,614,407.00	$ 76.44	$ 2,307,000.00	$ 38.21	$ 3,396,938.71	$ 56.27

Notes

RS Means CostWorks software was utilized for both the Square Foot Estimate and the Assembly Estimate.

For any items or parameters that were not listed in RS Means that were specified for use on the project, the closest possible match was chosen for use in the estimates.

EXISTING CONDITIONS SITE PLAN SUMMARY:

The Existing Conditions Site Plan can be seen in Appendix D.

Figure 4: Alley Alongside Existing Building, Courtesy of Google Earth

The existing building on 1612 U Street is located between two existing structures, a Chi-Cha Lounge and Stetson's Famous Bar and Grill. The Chi-Cha Lounge is directly adjacent to the existing fitness center, but there was an alley between Stetson's and the existing gym.

As seen in **orange** in Figure 4, the existing building had an alley running along its East side. VIDA Fitness was expanded into this alley up to the adjacent neighboring building (Stetson's). This area was previously used for alley access and parking, which was rerouted during construction. The new 45 foot addition was Phase 1 of construction and began while the existing building was still occupied by its previous tenants.

Figure 5: VIDA Fitness Rendering, Courtesy of SvS

The addition of a new Penthouse on the main existing roof of the building will bring the total height of the health club to 66FT. At this height, VIDA will be taller than both neighboring buildings to the East and West, as both of these buildings are two stories and three stories, respectively (shown in Figure 5 on the previous page). The two neighboring buildings are shown in **red**. For a full Existing Conditions Site Plan, which includes utilities, building footprints and heights, property lines, and traffic flows, see Appendix D.

SITE LAYOUT PLANNING:

The Phased Construction Site Plans for the three main phases of construction can be seen in Appendix E.

Due to the limited space on site, each phase of construction was planned so as to maximize efficiency and minimize any time wasted due to site congestion. The construction site can be seen in the aerial photo shown below in Figure 6. The overall site is outlined in **red** and the existing building is highlighted in **blue**.

Figure 6: Aerial View of Site, Courtesy of Google Earth

The following is a detailed description of the three construction site plans created for each main phase of construction. These plans can be found in Appendix E.

Phase 1: Foundation for New Addition

The demolition and excavation phase of the project began on the new addition while the existing building was still occupied. This phase of work included demolition of the existing concrete pad, excavation for pile caps, pile installation, and pouring the pile caps. The excavator and Bobcat shown in this plan move throughout the construction area (shown in yellow) during this phase. The concrete truck shown was used for the placement of the pile caps and slab on grade, and accessed the construction area through the alley on the south side of the site. The two construction

fences shown in red could be moved at any time to allow for construction vehicle access and were placed merely for security purposes.

All demolished concrete and excavated soil was removed out of the South side of the construction area and loaded onto a live-load dumpster. Any construction vehicles that needed to be in the alley had to be manned at all times, and all dumpsters had to be live-load only. This ensured that the alley could be cleared quickly for any residential neighbors needing to access the area. Temporary road blocks were also placed at the three alley entrances and two laborers were stationed full-time to monitor the alley and ensure only permitted vehicles (and local residential traffic) were allowed to access the area.

The Owner placed a trailer at the front of the building to begin selling gym memberships to VIDA Fitness throughout the course of construction. This trailer was used only for the Owner and no other trailer was used throughout construction. The construction management team set up an office on the third floor of the existing building and moved the office throughout the course of construction to ensure it did not hinder the project schedule.

Considering the challenges posed with a tight site and expedited schedule, this site layout functioned well at this stage of the project. Pedestrian traffic was not hindered and the flow of construction vehicles was as logical as it could be given the space. The project management team worked with the neighbors to ensure that local residents and business owners were not impeded by the construction.

Phase 2: Superstructure and Existing Roof

The construction of the superstructure of the new addition began while part of the existing building was still occupied. Concrete trucks used the back alley for access to pour the three floor addition with an entirely cast in place post-tensioned concrete structure. A new roof over the existing building also began construction in this phase. A 90-ton hydraulic truck crane was used to erect and disassemble the 17.5-ton tower crane. The tower crane was then used to move structural steel to the roof, where a new roof was erected two feet above the existing roof (to allow more depth and structural stability for the new pool).

Once the existing building was vacated, workers began saw-cutting an opening in the concrete slab on every floor for the addition of a steel monumental staircase. This is shown in green on the Phase 2 Site Plan. The tower crane was also used at this time to remove pieces of demolished slab cut concrete from the existing building. Once the slab was demolished, the monumental stairwell previously mentioned was lowered through the hole in pieces. There were two prefabricated stair runs for each floor, meaning that a total of ten stair runs were lowered through the opening and held in place with the crane while the steel crew welded them in place.

Though more congested than the previous plan, this plan is also logical considering the provided parameters. Alley access was again monitored by two full-time laborers and all material deliveries

were made between the hours of 7AM and 7PM in the two construction lanes at the front of the building. All materials were immediately off-loaded and stored in pre-approved storage areas throughout the building. Subcontractors coordinated the location of their material storage with Forrester Construction's on-site Superintendent. There are no substantial changes that could be made to this site plan to improve it or the construction flow.

Phase 3: Finishes and Existing Roof

As high-end finishes began going into the interiors of both the existing building and new addition, steel erection on the existing roof began for the fifth floor penthouse and bar area. The installation of metal decking also began over the new steel installed for the new roof on the existing building.

Material deliveries were again made on the North side of the building and either carried to a storage area inside the building or lifted with one of the two boom lifts. The exception to this was the storefront glass, which was kept outside of the building (shown in pink on the site plan) and installed in the new addition using one of the lifts. The 35-ton city truck crane was on site only when needed, and was used mainly for lifting coping stone and materials to one of the two roofs.

The scaffolding along the East and South sides of the building was used to install the 45" brick wall around the perimeter of the new addition's accessible roof. This posed the only problem with this site plan, as the scaffolding on the East side of the building was suspended over Stetson's roof and mortar was dropped onto the neighbor's roof. To remedy this, the masons covered Stetson's roof with plastic and removed it after they had finished with their masonry work. Though the location of the scaffolding angered the owner of Stetson's, there was no other feasible way to install the brick wall on the East side of the addition.

Overall, the three site plans for the main phases of construction, though cluttered, were logically thought through and laid out, presenting realistic representations of the construction process and flow of both vehicles and materials on the construction site.

LOCAL CONDITIONS:

Overview

Even through the downturn of the economy, Washington D.C. remains one of the main construction hubs in the country. Reinforced concrete remains the preferred structural building material in the area, mainly due to the strict height restrictions set by Congress in the Heights of Buildings Act (Grunwald). Other construction challenges include high population density, generally constricted sites, heavy traffic, historical preservation guidelines, building codes, a high water table, and zoning specifications.

History

Located on 1612 U Street NW in Washington D.C. (shown in Figure 7) on a 14,485 square foot site, the VIDA Fitness project is a renovation and addition to an existing building that housed a Results Gym, Café 1612, Bulldog Productions, and a Bang Salon.

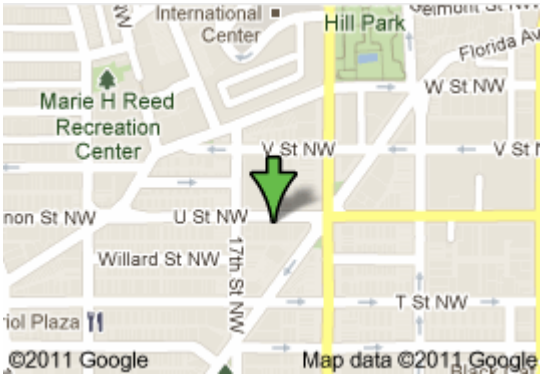


Figure 7: VIDA Fitness Location, Courtesy of Google

This complex is located on the U Street Corridor, an area that not only houses many residential row houses, but also various nightclubs, restaurants, bars, shops, galleries, and music venues. Because the majority of the area was developed between 1862 and 1900 and most of the architecture is considered Victorian, it has been designated as part of the historic district (Ault). It is for this reason that the project architect had strict guidelines both for designing the exterior façade of the new building addition and for renovating the existing building façade (Greater U Street). Approved by the Historic Preservation Review Board, the addition is said to "complement and preserve the historic architecture of the existing circa 1921 building" (Hays).

Soil and Subsurface Water Conditions

The geotechnical report revealed topsoil to be existent at depths from 2-4 inches on this site, along with a water table 12 feet below ground surface (BGS). Because of this, a sump pump was utilized during excavation for pile caps and grade beams.

Waste Removal

Due to the tight site conditions, only one dumpster at a time could fit in front of the building. These were typical dumpsters for miscellaneous site materials and waste with a cost of $500 per trade-out; Forrester Construction allotted for thirty dumpsters throughout the course of the project. Occasionally, waste would need to be removed in large quantities from the back of the site via the alley. In these instances, the dumpster would be live-loaded while still on the truck, in case any

local residents needed alley access. None of the construction waste materials was recycled on this project site.

Site Parking

On-site parking was extremely limited for both construction vehicles and building occupants because of the downtown site location. Only six parking meters existed in front of the building, and due to the residential area behind the building, any construction vehicle needed in that area had to be manned at all times to ensure easy alley access for locals. As seen in Figure 8 below, during construction hours of 7AM-7PM, Forrester Construction had permits for the parking lane and the first lane of traffic in front of the site. These spots were reserved for deliveries, lifts, cranes, and Superintendent, Project Manager, and Assistant Project Manager parking. All other construction workers were required to find parking either on neighboring streets (limited to two hours) or in the parking garage up the street (aproximately 0.5 miles away from the jobsite) that cost $11/day.

Figure 8: VIDA Site Parking; Picture Taken by Clara Watson

Local Bylaws and Permitting

Washington D.C. adopts the international codes that are published by the International Code Council (ICC). The Department of Consumer and Regulatory Affairs issues permits in D.C. and requires building permits for construction of the following:

- New construction and foundations
- Additions, alterations, or repair to existing buildings

- Demolition
- Signs or awnings erection
- Razes
- Fence, retaining wall, shed, vault, or garage construction
- Interior layout changes in an existing commercial building

A public space permit was also required for this project because a trailer and dumpster were kept in the front of the building for part of the construction process. The location of these can be seen on the construction site plans located in Appendix E. The use and occupancy of public spaces and public space permitting is overseen by the District Department of Transportation (DDOT).

Typical to most large cities, the permits become invalid and expire if construction has not begun within one year after the permit has been issued. Permits can take up to 30 days to acquire and fines are afforded to those who break the terms of the permit or do not follow its specific scope of work (which includes the project documents and plans). Any modifications made to the plans after approval or the permit scope must be reapproved.

One of the challenges with acquiring a building permit on this project was that the building is in the historic district, meaning that any proposed changes to the building must preserve the historical characteristics. The histroic preservation design review process is typically part of the building permit process in this area and takes place for the addition or alteration of a building façade. The Historic Preservation Office (HPO) and Historic Preservation Review Board (HPRB) both review any proposed changes before approving the project documents and plans for construction.

CLIENT INFORMATION:

Owner Background

David von Storch is the president and founder of Urban Adventures Companies, Inc., a company founded in 1986 that acts as the corporate heading for VIDA Fitness, Bang Salon, Capitol City Brewing Company, Aura Spa, and two new restaurants (one at 1612 U Street and one at 901 Ninth Street). Dubbed "Rich and Ripped" by The Washington Post, von Storch hit the number 16 spot on the Men's Health list of The World's Richest and Fittest Guys (Leitko). He moved to Washington D.C. after earning his MBA at Harvard Business School and it was there that he began construction of his empire. Atop all of the successful businesses, this empire includes nearly 1,500 employees coupled with a seven figure income, and is spread out over 200,000 square feet of Washington (Zak).

1612 U Street

Though the first VIDA Fitness was opened in 2006, there are currently four open at varying locations and another two on the way, ensuring von Storch is well on his way to achieving his goal of eight by 2015 (David Von Storch). One of the new fitness centers under active development is slated to be the flagship location; this 1612 U Street location is dubbed "the culmination of everything" by von Storch and will house a new high-end restaurant, Aura Spa, Bang Salon, and of course, VIDA Fitness (Zak).

Originally a parking garage, 1612 U Street was converted into E.B. Adams Co., a restaurant supply storage facility. Von Storch co-signed an agreement to own the four story building in 1995, and began plans designing a gym with his architect brother, Stephen von Storch. Von Storch decided to put the gym on hold, preferring instead to focus on the expansion of Capitol City Brewing. He elected Doug Jefferies, owner of Results Gym, to rent the space as a gym. It was not until 2005 that von Storch bought the building for $5.8 million and began planning the addition and transformation of the U Street building (Samuelson).

VIDA Fitness Expansion

It is clear that growth of VIDA Fitness plays a key role in the new 50,000 square foot fitness center. Not only is its size impressive, but the new rooftop will include a 60-foot pool, bar, outdoor cabanas, and a communal fire pit, living up to von Storch's affirmation to "try to do something better with each new VIDA Fitness". Compared to the 3,000 member existing Results Gym, von Storch hopes to have approximately 10,000 members by the time the building is fully open, 20 percent of which will be members of the rooftop pool club (Frederick). The entirely renovated existing four story building coupled with the new 10,000 square foot, three floor expansion will eventually house the largest VIDA Fitness, which includes over 50,000 square feet of cardio and fitness area (shown in Figure 9 on the next page). This VIDA will house six fitness studios, including Group Fitness, Inner Fitness, Yoga, Pilates, TRX, and GTS.

Critical Project Factors

For an experienced client like David von Storch who has already built several fitness centers and restaurants, there are several significant expectations that must be met to ensure owner satisfaction. Chief expectations for this particular owner include project schedule, cost, quality, project phasing, sequencing, and safety.

Figure 9: New Addition [Left] and Renovation of Existing Building [Right]; Photo Taken by Clara Watson

Schedule is an extremely critical factor on this project because it was von Storch's personal goal for groundbreaking in August of 2010, followed by the opening of the entirely renovated gym along with the three story addition in March, 2011. Though construction on the new addition began according to schedule and continued while the existing Results Gym remained open, the renovation of the entire existing 40,000 square foot building (and accessible roof) was left to be completed, along with the finish work of the new addition, in a mere three months. For every week that VIDA Fitness did not open on time, the company lost approximately $100,000, a fact that made it critical for the fitness center to open on time and according to the project's tight schedule.

Because detailed and accurate scheduling was acute to project success, the schedule was discussed weekly at both the Owner's meetings and the Foreman's meetings to ensure that all subcontractors knew what was to be completed when; sequencing also played an imperative role in the assurance of maintaining the project schedule. An overall VIDA Fitness project timeline is shown below in Figure 10:

Figure 10: Overall VIDA Fitness Timeline

Cost is another key aspect affecting the construction of the fitness center. Von Storch asserts that Urban Adventures Companies has a "low-risk profile", and claims that in terms of leverage, Bang Salon, Vida Fitness, and Capital City Brewing have virtually no bank debt. To fund this project, von Storch took out a $10 million loan against the building, and plans to invest the rest (approximately $5 million) in cash from his businesses (Heath). As unforeseen conditions caused the project contingency to be exhausted during the beginning phases of the project, a detailed project budget became even more critical to von Storch and the Forrester Construction Project Team. Because of this, budget was discussed weekly at the Owner meetings.

As von Storch spent a great deal of money on high-end finishes for his building, the **quality** of the finished product was of great importance to him; he worked closely with Wade Hallock of Hallock Design Group to ensure every detail was up to his standards. Von Storch expects excellence in both materials and workmanship. It was for this reason that quality was monitored closely throughout the project, and when it did not meet the standards of the project team, subcontractors were required to either repair their work or redo it entirely.

The Timeline above in Figure 10 shows that construction was still ongoing when the fitness center opened for business. Bang Salon also opened while the building was under construction, creating even more public foot traffic through the construction area. For this reason **project phasing** and **sequencing** coupled with occupant **safety** became important integral daily site activities. It remained a priority for Forrester Construction to protect not only the public, but also all of the Owner's employees. Temporary construction walls separated construction areas from public areas and construction signage labeled all necessary areas and egress paths. In addition to these safety precautions, all workers or personnel entering construction areas were required to read and sign the Forrester Construction Safety Plan and abide by its contents. Safety glasses, hardhats, safety vests, long pants, and work boots were required in construction areas at all times and all codes and regulations were followed to ensure a secure and safe project.

PROJECT DELIVERY SYSTEM:

Forrester Construction was selected for this project because of their relationship with the Owner, Urban Adventures, and because they had done several past projects for David von Storch. Both the addition and renovation on the new VIDA Fitness Center at 1612 U Street were completed using a Design-Bid-Build with Design Assist project delivery system. Though project documents and drawings are usually 100% complete in traditional Design-Bid-Build delivery systems, because of Forrester's standing relationship with the Owner and because it was a negotiated contract, this was not the case for this project; the drawings for this project continued to progress throughout the beginning of the job. Forrester Construction also aided in the bidding process and provided some of their own insight that had been gained from building two previous VIDA's for von Storch.

Typical for this type of delivery system, the contract between Forrester Construction and the Owner was a lump sum contract, and Forrester agreed in the contract to do the specified project for a fixed price. Forrester carried alternates and allowances that could not be executed without von Storch's permission. Any money not spent from these allowances will be returned to the Owner at the end of the project. Though not characteristic of a lump sum contract, alternates and allowances were used for this project because of the relationship between Forrester Construction and the Owner. Allowances in this case gave von Storch the latitude to change his mind as on design issues while still protecting Forrester from scope busts.

The initial contract signed between Forrester Construction and Urban Adventures for general contractor services was only for the construction of Bang Salon, Urban Adventures offices, and VIDA Fitness. The restaurant and Aura Spa that will also be housed in the building are a separate contract that has yet to be awarded. These spaces are planned for opening in May 2012.

All of the subcontracts held with Forrester Construction were lump sum contracts that were awarded to the lowest qualified bidder. The type of bonding required by Forrester for their subcontractors is dependent on the size of their contract, their experience with Forrester, and their current backlog. Performance and payment bonds are required by Forrester for subcontracts that exceed a certain amount.

Insurance requirements generally include Commercial General Liability Insurance, Commercial Automobile Liability Insurance, Workers' Compensation and Employers' Liability Insurance, and Excess Umbrella Liability Insurance.

Forrester is carrying All-Risk Builders Risk Insurance for this project. If a subcontractor fails to hold any of the four types of insurances listed above, Forrester reserves the right to procure and maintain those services, while the subcontractor will remain responsible for paying for the services.

The Project Organization Chart can be seen on the next page in Figure 11. Lump sum contracts are depicted with **blue** lines, and communication lines are shown in **green**.

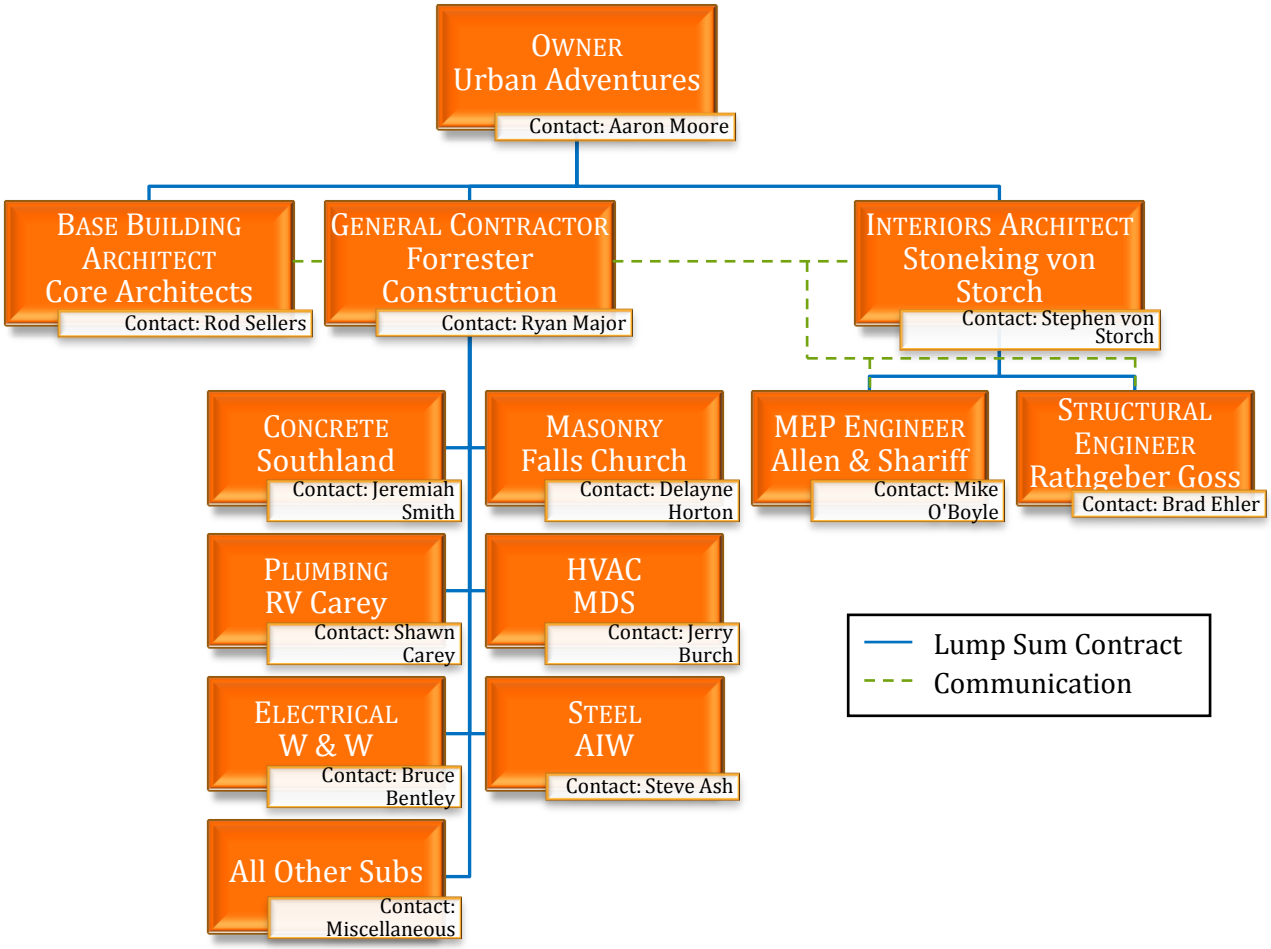


Figure 11: Project Organizational Chart

Overall, both the contract types and project delivery method chosen for this project are appropriate selections. Because of Forrester's history with the Owner and experience building past VIDA's, a modified Design-Bid-Build with Design Assist delivery system coupled with a lump sum contract provided both Forrester and Urban Adventures with a unique agreement for construction.

STAFFING PLAN:

The Project Staffing Plan shown in Figure 12 below is a typical layout for a Forrester Construction project. Forrester organizes their project teams based on project size and complexity. The Project Executive oversees several projects and visits each only once every couple of weeks. The Project Manager is located in the office and visits the job site for Owner's meetings or other important meetings. Both Superintendents are located full time on site, as is the Project Intern. The Assistant Project Managers split time between both the site and the office.

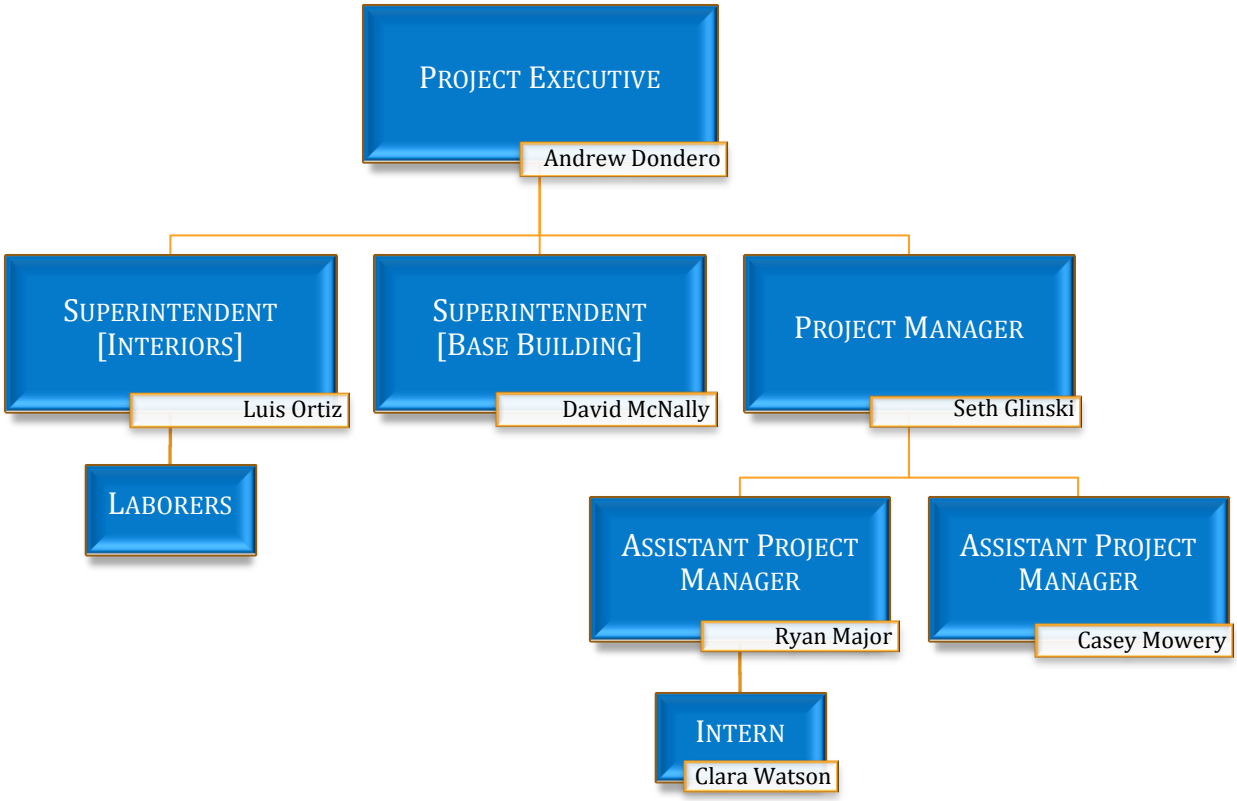


Figure 12: Project Staffing Plan

RESOURCES:

Ault, Alicia. "U Street: The Corridor Is Cool Again - New York Times." *Travel - Guides and Deals for Hotels, Restaurants and Vacations - The New York Times - The New York Times*. 14 April. 2011. Web. 25 Aug. 2011. <http://travel.nytimes.com/2006/04/14/travel/escapes/14washi.html>.

"David Von Storch -- Professional Biography." *Vida Fitness Washington DC Gym, Yoga & Personal Trainers - A Revolutionary Washington DC Gym!* Web. 13 Sept. 2011. <http://www.vidafitness.com/club_team_david.php>.

Frederick, Missy. "Vida Fitness Owner David Von Storch Offers Grand Vision for U St. Club – Washington Business Journal." *Business News - The Business Journals*. Web. 13 Sept. 2011. <http://www.bizjournals.com/washington/stories/2009/09/14/story3.html>.

"Greater U Street Historic District." *U.S. National Park Service - Experience Your America*. Web. 25 Aug. 2011. <http://www.nps.gov/nr/travel/wash/dc63.htm>.

Grunwald, Michael. "D.C.'s Fear of Heights." *The Washington Post: National, World & D.C. Area News and Headlines - The Washington Post*. Web. 4 Sept. 2011. <http://www.washingtonpost.com/wp-dyn/content/article/2006/06/30/AR2006063001316.html>.

Hays, Brooks Butler. "Construction at New VIDA-U Street to Begin Shortly." *DCmud - The Urban Real Estate Digest of Washington DC*. Web. 2 Sept. 2011. <http://dcmud.blogspot.com/2010/10/construction-at-new-vida-u-street-to.html>.

Heath, Thomas. "Von Storch Mines D.C. 'sweet Spot' with Vida Gyms, Bang Salons, Aura Spas, More." *The Washington Post: National, World & D.C. Area News and Headlines - The Washington Post*. Web. 13 Sept. 2011. <http://www.washingtonpost.com/wp-dyn/content/story/2010/12/29/ST2010122904231.html>.

Leitko, Aaron. "Names and Faces: Trump's F-bombs; Trivial Matters; Richest Ripped Guy." *Entertainment*. The Washington Post. Web. 2 Sept. 2011.

Samuelson, Ruth. "The Story of 1612 U Street, and a Bit Beyond: Four Developers and Businessmen Flow in a Tangled Orbit around David Von Storch's Starter Building. - Housing Complex - Washington City Paper." *Washington City Paper - D.C. Arts, News, Food and Living*. Web. 13 Sept. 2011. <http://www.washingtoncitypaper.com/blogs/housingcomplex/2010/01/27/the-story-of-1612-u-street-and-a-bit-beyond-four-developers-and-businessmen-flow-in-a-tangled-orbit-around-david-von-storchs-starter-building/>.

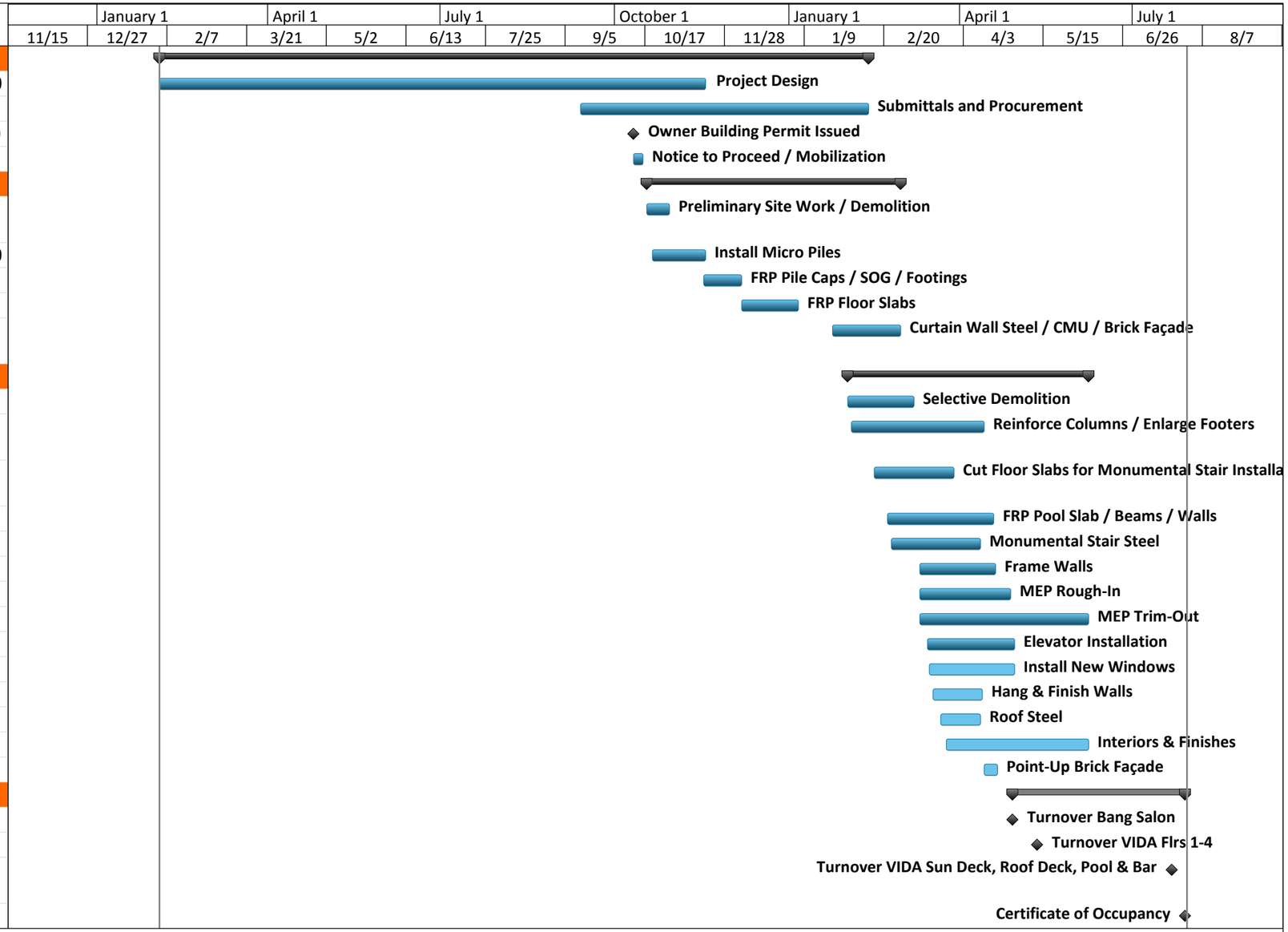
"Vida Fitness | A Gym with Pools, Fire Pits and Co-Ed Saunas | DC | DC | Logan Circle | Fitness." *UrbanDaddy | Restaurants & Bars | Nightlife Events from UrbanDaddy | International & US Travel*. Web. 13 Sept. 2011. <http://www.urbandaddy.com/dc/leisure/13852/Vida_Fitness_A_Gym_with_Pools_Fire_Pits_and_Co_Ed_Saunas_DC_DC_Logan_Circle_Fitness>.

Zak, Dan. "D.C. Developer David Von Storch Is Pumped to Take Fitness Centers to a New Level." *The Washington Post: National, World & D.C. Area News and Headlines - The Washington Post*. Web. 13 Sept. 2011. <http://www.washingtonpost.com/wp-dyn/content/article/2010/07/26/AR2010072605287.html>.

APPENDIX A

PROJECT SUMMARY SCHEDULE

ID	Task Name	Duration	Start	Finish
1	**Procurement / Preconstruction**	**268 days**	**Wed 2/3/10**	**Fri 2/11/11**
2	Project Design	206 days	Wed 2/3/10	Wed 11/17/10
3	Submittals and Procurement	110 days	Mon 9/13/10	Fri 2/11/11
4	Owner Building Permit Issued	0 days	Mon 10/11/10	Mon 10/11/10
5	Notice to Proceed / Mobilization	5 days	Mon 10/11/10	Fri 10/15/10
6	**New Addition Construction**	**96 days**	**Mon 10/18/10**	**Mon 2/28/11**
7	Preliminary Site Work / Demolition	10 days	Mon 10/18/10	Fri 10/29/10
8	Install Micro Piles	20 days	Thu 10/21/10	Wed 11/17/10
9	FRP Pile Caps / SOG / Footings	14 days	Wed 11/17/10	Mon 12/6/10
10	FRP Floor Slabs	22 days	Tue 12/7/10	Wed 1/5/11
11	Curtain Wall Steel / CMU / Brick Façade	26 days	Mon 1/24/11	Mon 2/28/11
12	**Existing Building Construction**	**91 days**	**Tue 2/1/11**	**Tue 6/7/11**
13	Selective Demolition	25 days	Tue 2/1/11	Mon 3/7/11
14	Reinforce Columns / Enlarge Footers	50 days	Thu 2/3/11	Wed 4/13/11
15	Cut Floor Slabs for Monumental Stair Installation	30 days	Tue 2/15/11	Mon 3/28/11
16	FRP Pool Slab / Beams / Walls	40 days	Tue 2/22/11	Mon 4/18/11
17	Monumental Stair Steel	33 days	Thu 2/24/11	Mon 4/11/11
18	Frame Walls	28 days	Fri 3/11/11	Tue 4/19/11
19	MEP Rough-In	34 days	Fri 3/11/11	Wed 4/27/11
20	MEP Trim-Out	63 days	Fri 3/11/11	Tue 6/7/11
21	Elevator Installation	34 days	Tue 3/15/11	Fri 4/29/11
22	Install New Windows	33 days	Wed 3/16/11	Fri 4/29/11
23	Hang & Finish Walls	18 days	Fri 3/18/11	Tue 4/12/11
24	Roof Steel	15 days	Tue 3/22/11	Mon 4/11/11
25	Interiors & Finishes	53 days	Fri 3/25/11	Tue 6/7/11
26	Point-Up Brick Façade	5 days	Thu 4/14/11	Wed 4/20/11
27	**Project Close-Out**	**65 days**	**Fri 4/29/11**	**Fri 7/29/11**
28	Turnover Bang Salon	0 days	Fri 4/29/11	Fri 4/29/11
29	Turnover VIDA Flrs 1-4	0 days	Thu 5/12/11	Thu 5/12/11
30	Turnover VIDA Sun Deck, Roof Deck, Pool & Bar	0 days	Fri 7/22/11	Fri 7/22/11
31	Certificate of Occupancy	0 days	Fri 7/29/11	Fri 7/29/11



Project: VIDA Project Schedule
Date: Wed 10/12/11

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline			
Split	External Tasks	Inactive Summary	Manual Summary	Progress			
Milestone	External Milestone	Manual Task	Start-only				
Summary	Inactive Task	Duration-only	Finish-only				

APPENDIX B

RS MEANS SQUARE FOOT COST ESTIMATE

Square Foot Cost Estimate Report

Estimate Name:	**New Addition**
Building Type:	**Gymnasium with Face Brick with Concrete Block Back-up / Reinforced Concrete**
Location:	**WASHINGTON, DC**
Story Count:	**3**
Story Height (L.F.):	**13.2**
Floor Area (S.F.):	**10920**
Labor Type:	**Union**
Basement Included:	**No**
Data Release:	**Year 2011**
Cost Per Square Foot:	**$194.73**
Building Cost:	**$2,126,500**

Costs are derived from a building model with basic components.

Scope differences and market conditions can cause costs to vary significantly.

Parameters are not within the ranges recommended by RSMeans.

		% of Total	Cost Per S.F.	Cost
A Substructure		**4.70%**	**$6.82**	**$74,500**
A1010	**Standard Foundations**		**$2.11**	**$23,000**
	Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide			
	spread footings, 3000 PSI concrete, load 50K, soil bearing capacity 6 KSF, 3' - 0" square x 12" deep			
A1030	**Slab on Grade**		**$1.65**	**$18,000**
	Slab on grade, 4" thick, non industrial, reinforced			
A2010	**Basement Excavation**		**$0.05**	**$500**
	Excavate and fill, 30,000 SF, 4' deep, sand, gravel, or common earth, on site storage			
A2020	**Basement Walls**		**$3.02**	**$33,000**
	Foundation wall, CIP, 4' wall height, direct chute, .099 CY/LF, 4.8 PLF, 8" thick			
B Shell		**47.30%**	**$68.82**	**$751,500**
B1020	**Roof Construction**		**$12.87**	**$140,500**
	Steel deck, 3" deep, 16 ga, single 20' span, 6.0 PSF, 40 PSF superimposed load			
B2010	**Exterior Walls**		**$45.83**	**$500,500**
	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill			
B2020	**Exterior Windows**		**$7.97**	**$87,000**
	Windows, aluminum, awning, standard glass, 3'-1" x 3'-2"			
B2030	**Exterior Doors**		**$0.60**	**$6,500**
	Door, aluminum & glass, sliding patio, tempered glass, economy, 6'-0" x 7'-0" opening			

	Door, wood, overhead, panels, heavy duty, manual operation, 10'-0" x 10'-0" opening			
	Door, steel 24 gauge, overhead, sectional, manual operation, 10'-0" x 10'-0" opening			
B3010	**Roof Coverings**		**$1.56**	**$17,000**
	Drip edge, aluminum .016" thick, 5" girth, mill finish			
	Roofing, single ply membrane, EPDM, 60 mils, fully adhered			
	Insulation, rigid, roof deck, polyisocyanurate, 2#/CF, 3.5" thick			
C Interiors		**16.40%**	**$23.81**	**$260,000**
C1010	**Partitions**		**$1.60**	**$17,500**
	Concrete block (CMU) partition, light weight, hollow, 6" thick, no finish			
C1020	**Interior Doors**		**$2.15**	**$23,500**
	Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"			
C1030	**Fittings**		**$0.41**	**$4,500**
	Toilet partitions, cubicles, ceiling hung, stainless steel			
C3010	**Wall Finishes**		**$5.27**	**$57,500**
	2 coats paint on masonry with block filler			
	Painting, masonry or concrete, latex, brushwork, primer & 2 coats			
	Ceramic tile, thin set, 4-1/4" x 4-1/4"			
C3020	**Floor Finishes**		**$13.46**	**$147,000**
	Tile, ceramic natural clay			
	Maple strip, sanded and finished, maximum			
	Add for sleepers on concrete, treated, 24" OC, 1"x2"			
C3030	**Ceiling Finishes**		**$0.92**	**$10,000**
	Acoustic ceilings, 3/4"mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support			
D Services		**27.60%**	**$40.11**	**$438,000**
D2010	**Plumbing Fixtures**		**$7.55**	**$82,500**
	Water closet, vitreous china, bowl only with flush valve, wall hung			
	Urinal, vitreous china, wall hung			
	Lavatory w/trim, wall hung, PE on CI, 19" x 17" Kitchen sink w/trim, countertop, stainless steel, 33" x 22" double bowl			
	Service sink w/trim, PE on CI,wall hung w/rim guard, 24" x 20"			
	Shower, stall, baked enamel, terrazzo receptor, 36" square			
	Water cooler, electric, wall hung, dual height, 14.3 GPH			
D2020	**Domestic Water Distribution**		**$3.89**	**$42,500**
	Gas fired water heater, commercial, 100< F rise, 600 MBH input, 576 GPH			
D3050	**Terminal & Package Units**		**$10.35**	**$113,000**

	Rooftop, single zone, air conditioner, banks or libraries, 10,000 SF, 41.67 ton			
D4010	**Sprinklers** Wet pipe sprinkler systems, steel, light hazard, 1 floor, 10,000 SF		**$3.30**	**$36,000**
D4020	**Standpipes** Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, 1 floor Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, additional floors		**$0.82**	**$9,000**
D5010	**Electrical Service/Distribution** Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 400 A Feeder installation 600 V, including RGS conduit and XHHW wire, 400 A Switchgear installation, incl switchboard, panels & circuit breaker, 400 A		**$1.88**	**$20,500**
D5020	**Lighting and Branch Wiring** Receptacles incl plate, box, conduit, wire, 8 per 1000 SF, .9 watts per SF Wall switches, 1.0 per 1000 SF Miscellaneous power, 1 watt Central air conditioning power, 4 watts Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF		**$8.88**	**$97,000**
D5030	**Communications and Security** Communication and alarm systems, includes outlets, boxes, conduit and wire, sound systems, 12 outlets Communication and alarm systems, fire detection, addressable, 25 detectors, includes outlets, boxes, conduit and wire Fire alarm command center, addressable with voice, excl. wire & conduit		**$3.25**	**$35,500**
D5090	**Other Electrical Systems** Generator sets, w/battery, charger, muffler and transfer switch, gas/gasoline operated, 3 phase, 4 wire, 277/480 V, 7.5 kW		**$0.18**	**$2,000**
E Equipment & Furnishings		**4.20%**	**$6.04**	**$66,000**
E1090	**Other Equipment** Architectural equipment, school equipment, weight lifting gym, universal, deluxe Architectural equipment, sauna, prefabricated, including heater and controls, 7' high, 6' x 4'		**$6.04**	**$66,000**
F Special Construction		**0.00%**	**$0.00**	**$0**
G Building Sitework		**0.00%**	**$0.00**	**$0**

SubTotal	**100%**	**$145.60**	**$1,590,000**
Contractor Fees (General Conditions, Overhead, Profit)	**25.00%**	**$36.40**	**$397,500**
Architectural Fees	**7.00%**	**$12.73**	**$139,000**
User Fees	**0.00%**	**$0.00**	**$0**
Total Building Cost		**$194.73**	**$2,126,500**

Square Foot Cost Estimate Report

Estimate Name:	**Renovation of Existing Building**
Building Type:	**Gymnasium with Face Brick with Concrete Block Back-up / Reinforced Concrete**
Location:	**WASHINGTON, DC**
Story Count:	**5**
Story Height (L.F.):	**13.2**
Floor Area (S.F.):	**49450**
Labor Type:	**Union**
Basement Included:	**No**
Data Release:	**Year 2011**
Cost Per Square Foot:	**$173.28**
Building Cost:	**$8,568,500**

Costs are derived from a building model with basic components.

Scope differences and market conditions can cause costs to vary significantly.

Parameters are not within the ranges recommended by RSMeans.

		% of Total	Cost Per S.F.	Cost
A Substructure		**2.90%**	**$3.71**	**$183,500**
A1010	**Standard Foundations**		**$1.20**	**$59,500**
	Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide			
	spread footings, 3000 PSI concrete, load 50K, soil bearing capacity 6 KSF, 3' - 0" square x 12" deep			
A1030	**Slab on Grade**		**$0.99**	**$49,000**
	Slab on grade, 4" thick, non industrial, reinforced			
A2010	**Basement Excavation**		**$0.03**	**$1,500**
	Excavate and fill, 30,000 SF, 4' deep, sand, gravel, or common earth, on site storage			
A2020	**Basement Walls**		**$1.49**	**$73,500**
	Foundation wall, CIP, 4' wall height, direct chute, .099 CY/LF, 4.8 PLF, 8" thick			
B Shell		**44.40%**	**$57.51**	**$2,844,000**
B1020	**Roof Construction**		**$11.91**	**$589,000**
	Steel deck, 3" deep, 16 ga, single 20' span, 6.0 PSF, 40 PSF superimposed load			
B2010	**Exterior Walls**		**$37.53**	**$1,856,000**
	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill			
B2020	**Exterior Windows**		**$6.54**	**$323,500**
	Windows, aluminum, awning, standard glass, 3'-1" x 3'-2"			
B2030	**Exterior Doors**		**$0.58**	**$28,500**
	Door, aluminum & glass, sliding patio, tempered glass, economy, 6'-0" x 7'-0" opening			

	Door, wood, overhead, panels, heavy duty, manual operation, 10'-0" x 10'-0" opening			
	Door, steel 24 gauge, overhead, sectional, manual operation, 10'-0" x 10'-0" opening			
B3010	**Roof Coverings**		**$0.95**	**$47,000**
	Drip edge, aluminum .016" thick, 5" girth, mill finish			
	Roofing, single ply membrane, EPDM, 60 mils, fully adhered			
	Insulation, rigid, roof deck, polyisocyanurate, 2#/CF, 3.5" thick			
C Interiors		**17.60%**	**$22.81**	**$1,128,000**
C1010	**Partitions**		**$1.61**	**$79,500**
	Concrete block (CMU) partition, light weight, hollow, 6" thick, no finish			
C1020	**Interior Doors**		**$2.14**	**$106,000**
	Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"			
C1030	**Fittings**		**$0.09**	**$4,500**
	Toilet partitions, cubicles, ceiling hung, stainless steel			
C3010	**Wall Finishes**		**$4.59**	**$227,000**
	2 coats paint on masonry with block filler			
	Painting, masonry or concrete, latex, brushwork, primer & 2 coats			
	Ceramic tile, thin set, 4-1/4" x 4-1/4"			
C3020	**Floor Finishes**		**$13.47**	**$666,000**
	Tile, ceramic natural clay			
	Maple strip, sanded and finished, maximum			
	Add for sleepers on concrete, treated, 24" OC, 1"x2"			
C3030	**Ceiling Finishes**		**$0.91**	**$45,000**
	Acoustic ceilings, 3/4"mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support			
D Services		**29.20%**	**$37.80**	**$1,869,000**
D2010	**Plumbing Fixtures**		**$7.56**	**$374,000**
	Water closet, vitreous china, bowl only with flush valve, wall hung			
	Urinal, vitreous china, wall hung			
	Lavatory w/trim, wall hung, PE on CI, 19" x 17" Kitchen sink w/trim, countertop, stainless steel, 33" x 22" double bowl			
	Service sink w/trim, PE on CI,wall hung w/rim guard, 24" x 20"			
	Shower, stall, baked enamel, terrazzo receptor, 36" square			
	Water cooler, electric, wall hung, dual height, 14.3 GPH			
D2020	**Domestic Water Distribution**		**$3.88**	**$192,000**
	Gas fired water heater, commercial, 100< F rise, 600 MBH input, 576 GPH			
D3050	**Terminal & Package Units**		**$10.33**	**$511,000**

	Rooftop, single zone, air conditioner, banks or libraries, 10,000 SF, 41.67 ton			
D4010	**Sprinklers**		**$3.29**	**$162,500**
	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 10,000 SF			
D4020	**Standpipes**		**$0.82**	**$40,500**
	Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, 1 floor			
	Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, additional floors			
D5010	**Electrical Service/Distribution**		**$0.41**	**$20,500**
	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 400 A			
	Feeder installation 600 V, including RGS conduit and XHHW wire, 400 A			
	Switchgear installation, incl switchboard, panels & circuit breaker, 400 A			
D5020	**Lighting and Branch Wiring** Receptacles incl plate, box, conduit, wire, 8 per 1000 SF, .9 watts per SF Wall switches, 1.0 per 1000 SF Miscellaneous power, 1 watt Central air conditioning power, 4 watts		**$8.89**	**$439,500**
	Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF			
D5030	**Communications and Security**		**$2.41**	**$119,000**
	Communication and alarm systems, includes outlets, boxes, conduit and wire, sound systems, 12 outlets			
	Communication and alarm systems, fire detection, addressable, 25 detectors, includes outlets, boxes, conduit and wire			
	Fire alarm command center, addressable with voice, excl. wire & conduit			
D5090	**Other Electrical Systems**		**$0.20**	**$10,000**
	Generator sets, w/battery, charger, muffler and transfer switch, gas/gasoline operated, 3 phase, 4 wire, 277/480 V, 7.5 kW			
E Equipment & Furnishings		**6.00%**	**$7.72**	**$382,000**
E1090	**Other Equipment**		**$7.72**	**$382,000**
	256 - Lockers, steel, baked enamel, single tier, maximum			
	Architectural equipment, school equipment, weight lifting gym, universal, deluxe			
	Architectural equipment, sauna, prefabricated, including heater and controls, 7' high, 6' x 4'			
F Special Construction		**0.00%**	**$0.00**	**$0**
G Building Sitework		**0.00%**	**$0.00**	**$0**

SubTotal	**100%**	**$129.56**	**$6,406,500**
Contractor Fees (General Conditions,Overhead,Profit)	**25.00%**	**$32.39**	**$1,601,500**
Architectural Fees	**7.00%**	**$11.33**	**$560,500**
User Fees	**0.00%**	**$0.00**	**$0**
Total Building Cost		**$173.28**	**$8,568,500**

APPENDIX C

RS MEANS ASSEMBLY COST ESTIMATE

MEP Assemblies Cost Estimate Report										
Quantity	Assembly Number	Description	Unit	Material O&P	Installation O&P	Total O&P	Ext. Material O&P	Ext. Installation O&P	Ext. Total O&P	Labor Type
D2010	**Plumbing Fixtures**									
14	D20101101920	Water closet, vitreous china, tank type, floor mount, 1 piece	Ea.	$ 1,452.90	$ 683.28	$ 2,136.18	$ 20,340.60	$ 9,565.92	$ 29,906.52	STD
5	D20102102000	Urinal, vitreous china, wall hung	Ea.	$ 591.18	$ 725.99	$ 1,317.17	$ 2,955.90	$ 3,629.95	$ 6,585.85	STD
12	D20103101640	Lavatory w/trim, vanity top, PE on CI, 18" round	Ea.	$ 606.21	$ 645.32	$ 1,251.53	$ 7,274.52	$ 7,743.84	$ 15,018.36	STD
5	D20103102040	Lavatory w/trim, wall hung, PE on CI, 18" x 15"	Ea.	$ 871.74	$ 711.75	$ 1,583.49	$ 4,358.70	$ 3,558.75	$ 7,917.45	STD
2	D20104102240	Kitchen sink w/trim, raised deck, PE on CI, 32" x 21", dual level, double bowl	Ea.	$ 811.62	$ 972.73	$ 1,784.35	$ 1,623.24	$ 1,945.46	$ 3,568.70	STD
14	D20107101600	Shower, stall, baked enamel, molded stone receptor, 32" square	Ea.	$ 1,202.40	$ 754.46	$ 1,956.86	$ 16,833.60	$ 10,562.44	$ 27,396.04	STD
2	D20107102100	Shower, ss panels, handicap w/fixed & handheld head, control valves,grab bar & seat	Ea.	$ 5,320.62	$ 3,340.48	$ 8,661.10	$ 10,641.24	$ 6,680.96	$ 17,322.20	STD
3	D20108101920	Drinking fountain, 1 bubbler, wall mounted, non recessed, stainless steel, no back	Ea.	$ 1,277.55	$ 427.05	$ 1,704.60	$ 3,832.65	$ 1,281.15	$ 5,113.80	STD
3	D20108201880	Water cooler, electric, wall hung, dual height, 14.3 GPH	Ea.	$ 1,528.05	$ 564.66	$ 2,092.71	$ 4,584.15	$ 1,693.98	$ 6,278.13	STD
D2020	**Domestic Water Distribution**									
4	D20202502260	Gas fired water heater, commercial, 100< F rise, 600 MBH input, 576 GPH	Ea.	$ 19,338.60	$ 3,487.58	$ 22,826.18	$ 77,354.40	$ 13,950.32	$ 91,304.72	STD
D2040	**Rain Water Drainage**									
6	D20402101880	Roof drain, DWV PVC, 2" diam, piping, 10' high	Ea.	$ 286.57	$ 607.36	$ 893.93	$ 1,719.42	$ 3,644.16	$ 5,363.58	STD
D3010	**Energy Supply**									
60000	D30105301960	Commercial building heating systems, terminal unit heaters, forced hot water, 100,000 SF bldg, 1mil CF, total, 3 floors	S.F.	$ 1.72	$ 2.01	$ 3.73	$ 103,200.00	$ 120,600.00	$ 223,800.00	STD
D3020	**Heat Generating Systems**									
2	D30201061080	Boiler, gas, cast iron, hot water, 1,088 MBH	Ea.	$ 14,228.40	$ 5,836.35	$ 20,064.75	$ 28,456.80	$ 11,672.70	$ 40,129.50	STD
D3030	**Cooling Generating Systems**									
60000	D30301154280	Packaged chiller, water cooled, with fan coil unit, restaurants, 40,000 SF, 200.00 ton	S.F.	$ 7.82	$ 5.86	$ 13.68	$ 469,200.00	$ 351,600.00	$ 820,800.00	STD

3	D30301401010	Chiller, centrifugal, water cooled, packaged hermetic, standard controls, 200 ton	Ea.	$ 97,695.00	$ 29,396.20	$ 127,091.20	$ 293,085.00	$ 88,188.60	$ 381,273.60	STD
D3040	**Distribution Systems**									
3	D30401281010	Fan coil A/C system, horizontal with cabinet, controls, 4 pipe, 1/2 ton	Ea.	$ 2,855.70	$ 3,202.88	$ 6,058.58	$ 8,567.10	$ 9,608.64	$ 18,175.74	STD
15	D30401221010	Fan coil A/C system, cabinet mounted, controls, 4 pipe, 1/2 ton	Ea.	$ 1,953.90	$ 2,206.43	$ 4,160.33	$ 29,308.50	$ 33,096.45	$ 62,404.95	STD
2	D30401341040	VAV terminal, cooling, hot water reheat, with actuator / controls, 800 CFM	Ea.	$ 2,379.75	$ 4,412.85	$ 6,792.60	$ 4,759.50	$ 8,825.70	$ 13,585.20	STD
6	D30401341070	VAV terminal, cooling, hot water reheat, with actuator / controls, 1500 CFM	Ea.	$ 3,256.50	$ 7,212.40	$ 10,468.90	$ 19,539.00	$ 43,274.40	$ 62,813.40	STD
2	D30401341080	VAV terminal, cooling, hot water reheat, with actuator / controls, 2000 CFM	Ea.	$ 3,882.75	$ 9,774.70	$ 13,657.45	$ 7,765.50	$ 19,549.40	$ 27,314.90	STD
1	D30401341010	VAV terminal, cooling, hot water reheat, with actuator/controls, 200 CFM	Ea.	$ 1,842.77	$ 2,030.89	$ 3,873.66	$ 1,842.77	$ 2,030.89	$ 3,873.66	STD
1	D30401341020	VAV terminal, cooling, hot water reheat, with actuator / controls, 400 CFM	Ea.	$ 2,029.05	$ 2,752.10	$ 4,781.15	$ 2,029.05	$ 2,752.10	$ 4,781.15	STD
2	D30401341030	VAV terminal, cooling, hot water reheat, with actuator / controls, 600 CFM	Ea.	$ 2,279.55	$ 3,772.28	$ 6,051.83	$ 4,559.10	$ 7,544.56	$ 12,103.66	STD
1	D30406101010	Plate heat exchanger, 400 GPM	Ea.	$ 49,198.20	$ 13,944.50	$ 63,142.70	$ 49,198.20	$ 13,944.50	$ 63,142.70	STD
D3050	**Terminal & Package Units**									
1	D30502011010	A/C packaged, DX, air cooled, electric heat, constant volume, 5 ton	Ea.	$ 8,391.75	$ 3,748.55	$ 12,140.30	$ 8,391.75	$ 3,748.55	$ 12,140.30	STD
D4010	**Sprinklers**									
10000	D40104101080	Wet pipe sprinkler systems, steel, ordinary hazard, 1 floor, 10,000 SF	S.F.	$ 1.92	$ 2.27	$ 4.19	$ 19,200.00	$ 22,700.00	$ 41,900.00	STD
50000	D40104101220	Wet pipe sprinkler systems, steel, ordinary hazard, each additional floor, 10,000 SF	S.F.	$ 1.31	$ 2.12	$ 3.43	$ 65,500.00	$ 106,000.00	$ 171,500.00	STD
D4020	**Standpipes**									
1	D40203100600	Wet standpipe risers, class I, steel, black, sch 40, 6" diam pipe, 1 floor	Floor	$ 6,487.95	$ 5,271.73	$ 11,759.68	$ 6,487.95	$ 5,271.73	$ 11,759.68	STD
4	D40203100620	Wet standpipe risers, class I, steel, black, sch 40, 6" diam pipe, additional floors	Floor	$ 1,553.10	$ 1,461.53	$ 3,014.63	$ 6,212.40	$ 5,846.12	$ 12,058.52	STD

D5010	**Electrical Service/Distribution**									
1	D50101200520	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 1600 A	Ea.	$ 28,189.20	$ 8,617.20	$ 36,806.40	$ 28,189.20	$ 8,617.20	$ 36,806.40	STD
D5020	**Lighting and Branch Wiring**									
30000	D50201150760	Receptacle systems, conduit system with floor boxes, high density	S.F.	$ 2.27	$ 2.02	$ 4.29	$ 68,100.00	$ 60,600.00	$ 128,700.00	STD
30000	D50201300240	Wall switches, 1.2 per 1000 SF	S.F.	$ 0.06	$ 0.25	$ 0.31	$ 1,800.00	$ 7,500.00	$ 9,300.00	STD
30000	D50202140400	Incandescent fixtures recess mounted, 100 FC, type A, 34 fixtures per 400 SF	S.F.	$ 13.99	$ 18.89	$ 32.88	$ 419,700.00	$ 566,700.00	$ 986,400.00	STD
D5030	**Communications and Security**									
20000	D50303100520	Telephone systems, telepoles, low density	S.F.	$ 1.18	$ 0.64	$ 1.82	$ 23,600.00	$ 12,800.00	$ 36,400.00	STD
Total Building Cost									**$3,396,938.71**	

APPENDIX D

EXISTING CONDITIONS SITE PLAN

U STREET NW

OWNER TRAILER

CONSTRUCTION PARKING 7AM-7PM

CONSTRUCTION PARKING 24/7

CHI-CHA LOUNGE
HEIGHT: 44FT

WOODEN STRUCTURE

EXISTING 4-STORY BUILDING
STILL OCCUPIED

CONSTRUCTION AREA

CONCRETE TRUCK ACCESS

LIVE-LOAD DUMPSTER

STETSON'S BAR
HEIGHT: 33FT

LOCAL 16
RESTAURANT & BAR
HEIGHT: 38FT

NEW HAMPSHIRE AVE NW

LEGEND

SYMBOLS

- PROPERTY LINE
- BRICK WALL
- WOODEN FENCE
- CONSTRUCTION FENCE
- TEMPORARY ROAD BLOCK
- PORTABLE TOILET
- MANHOLE COVER
- EXISTING TREE
- CONSTRUCTION TRAFFIC
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC
- WORK FLOW
- FIRE HYDRANT
- WASTE DUMPSTER

PROJECT: VIDA FITNESS CENTER

1612 U STREET NW
WASHINGTON, D.C. 20009

SCALE: NTS

DATE: 9.23.2011

CLARA WATSON

CONSTRUCTION SITE PLAN PHASE 1 - FOUNDATION FOR NEW ADDITION

NORTH

APPENDIX E

PHASED CONSTRUCTION SITE PLANS

U STREET NW

OWNER TRAILER

CONSTRUCTION PARKING 24/7

CONSTRUCTION PARKING 7AM-7PM

90-TON HYDRAULIC TRUCK CRANE

RADIUS: 63FT

17.5-TON TOWER CRANE

TEMPORARILY LIT PROTECTED PEDESTRIAN WALK

SLAB CUT FOR STAIRS, ALL 5 FLRS

DEMO EX. WALL FOR ACCESS TO EX. BUILDING

RADIUS: 73FT

CHI-CHA LOUNGE
HEIGHT: 44FT

WOODEN STRUCTURE

STETSON'S BAR
HEIGHT: 33FT

LOCAL 16
RESTAURANT & BAR
HEIGHT: 38FT

NEW HAMPSHIRE AVE NW

LEGEND

SYMBOLS

- PROPERTY LINE
- BRICK WALL
- WOODEN FENCE
- CONSTRUCTION FENCE
- TEMPORARY ROAD BLOCK
- PORTABLE TOILET
- MANHOLE COVER
- EXISTING TREE
- CONSTRUCTION TRAFFIC
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC
- FIRE HYDRANT
- WASTE DUMPSTER

PROJECT: VIDA FITNESS CENTER

1612 U STREET NW
WASHINGTON, D.C. 20009

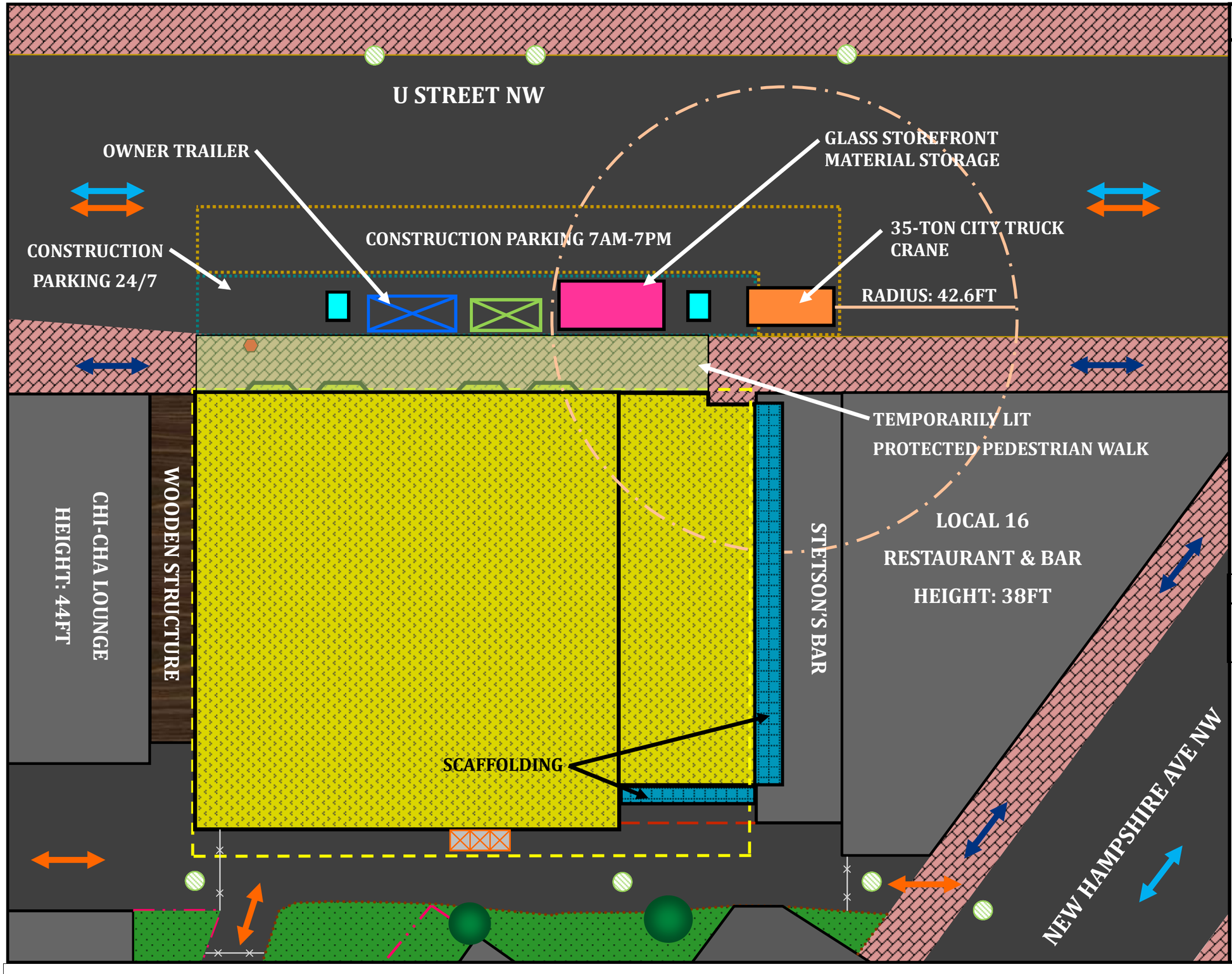
SCALE: NTS

DATE: 9.23.2011

CLARA WATSON

CONSTRUCTION SITE PLAN
PHASE 2 - SUPERSTRUCTURE
& EXISTING ROOF

NORTH



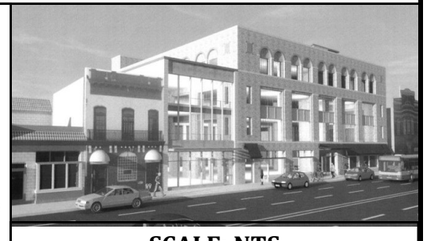
LEGEND

SYMBOLS

- PROPERTY LINE
- BRICK WALL
- WOODEN FENCE
- CONSTRUCTION FENCE
- TEMPORARY ROAD BLOCK
- PORTABLE TOILET
- MANHOLE COVER
- EXISTING TREE
- CONSTRUCTION TRAFFIC
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC
- FIRE HYDRANT
- WASTE DUMPSTER
- ARTICULATING BOOM LIFT

PROJECT: VIDA FITNESS CENTER

1612 U STREET NW
WASHINGTON, D.C. 20009



NORTH

SCALE: NTS

DATE: 9.23.2011

CLARA WATSON

CONSTRUCTION SITE PLAN
PHASE 3 - FINISHES & EXISTING ROOF

U STREET NW

EXISTING METERED PARKING

TEMPORARILY LIT
PROTECTED PEDESTRIAN WALK

CHI-CHA LOUNGE
HEIGHT: 44FT

WOODEN STRUCTURE

EXISTING 4-STORY BUILDING
TO BE RENOVATED

ADDITION OF ROOF PENTHOUSE
TOTAL HEIGHT: 66FT

NEW
ADDITION
HT: 45FT

STETSON'S BAR
HEIGHT: 33FT

LOCAL 16
RESTAURANT & BAR
HEIGHT: 38FT

NEW HAMPSHIRE AVE NW

LEGEND

EXISTINT UTILITIES

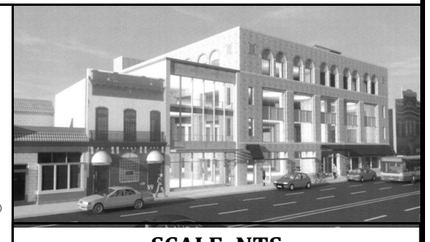
- GAS LINE
- ABANDONED GAS LINE
- SEWER LINE
- WATER LINE

SYMBOLS

- PROPERTY LINE
- BRICK WALL
- WOODEN FENCE
- CONSTRUCTION FENCE
- MANHOLE COVER
- EXISTING TREE
- CLEAN OUT
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC
- FIRE HYDRANT

PROJECT: VIDA FITNESS CENTER

1612 U STREET NW
WASHINGTON, D.C. 20009



SCALE: NTS

DATE: 9.23.2011

CLARA WATSON

EXISTING CONDITIONS PLAN

NORTH