
Technical Report 1

Inova Fairfax Hospital South Patient Tower
Falls Church, VA

09/23/2011



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Construction Management Option

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Executive Summary

Technical Report 1 is the introduction of some basic information about the Inova Fairfax South Patient Tower. It is intended to familiarize the reader with the conditions under which the building is constructed and the scope of work. These backgrounds help the readers to understand the opportunities and constraints that may affect the design and construction process.

The construction of the Inova Fairfax South Patient Tower is an addition to the existing, functional hospital. This presents some construction difficulties and concerns in terms of logistics and operations. Several other aspects of the project were analyzed in this report as well such as building systems, schedule, cost, site plan, and existing conditions of the South Patient Tower. A detailed look at the building systems describes the design and methods of construction that the team looks to take to complete the project successfully while also achieve LEED Silver certification from the United States Green Building Council.

The final pieces of information in this report include the clients' information as well as the project delivery system and staffing plan for the South Patient Tower. The tower will include 174 private patient rooms for both general and intensive care units, which will significantly alleviate overcrowding in the existing tower building. Five floors are dedicated to medical/surgery beds and three floors to ICU beds. Hospital officials expect this 216,000-square-foot tower to be complete by fall 2012 at a cost of \$161million. Wilmot Sanz of Gaithersburg, MD is the project architecture firm that has worked with the hospital to develop a Master Facilities Plan which addresses the evolving healthcare needs of the region.

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Project Schedule Summary

***Refer to Appendix B for Project Schedule Summary**

The project summary schedule is based off of the Master schedule and SPT schedule provided to me by the Construction Engineer. Because of the schedule delay, I made the schedule based on the original project schedule. The Inova Fairfax Hospital South Patient Tower project construction began in July 8th, 2010. The permits & site development started on November 3rd, 2009 with a duration of 437 days. The preconstruction phase took 120days beginning in March 8th, 2010. Major utilities and site work began in July 8th, 2010 with earthwork and foundations to follow.

Schedule Delay

There is schedule delay due to the change of sanitary sewer system and the mistake of drawings for the south facade of the building. The project has a slight interruption with the earthquake that occurred on August 23, 2011 and a Hurricane that it had to prepare for on August 27, 2011. As a result the crane on site was shut down the day after the earthquake for a re-inspection and to repair water damage on the crane motors after the hurricane. The air handling units on the 5th floor were scheduled to be delivered the weekend of August 27th and 28th but was moved to labor day weekend because of the hurricane.

The floor pour was completed on August 30, 2011. The concrete substantial completion is projected to be September 9th, 2011. The schedule of topping out luncheon is September 7th, which can ensure the concrete crew is presented for lunch.

After reviewing material deliveries and fabrication schedules, Turner has developed a plan to bring the schedule back to a June 21, 2012 completion date. The key to this success will be the building closed in. In addition they have re-sequenced the floor fit out and will have multiple floors in progress at the same time.

Building Systems Summary

Work Scope	YES	NO
Demolition	X	
Structural Steel Frame	X	
Cast-in-place Concrete	X	
Precast Concrete	X	
Mechanical System	X	
Electrical System	X	
Masonry	X	
Curtain Wall	X	
Support of Excavation	X	

Demolition

Demolition is required since the new south patient tower connects to the existing 11-story patient building to maximize space and patient care efficiencies. Also, it is needed for the existing landscape. Many existing water valve, fire hydrant power line, storm pipe 12” rcp, F.O cables are needed to be either relocated or removed.

Structural Steel Frame

Exterior erect cold-formed metal framing to withstand design loads non load bearing framing some of the products have recycled content. Cold-formed metal may be shop or field fabricated for installation or it may be field assembled. Temporary bracing and supports are installed to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place until entire integrated supporting structure has been complete and permanent connections to framing are secured For exterior non-load-bearing wall installation continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

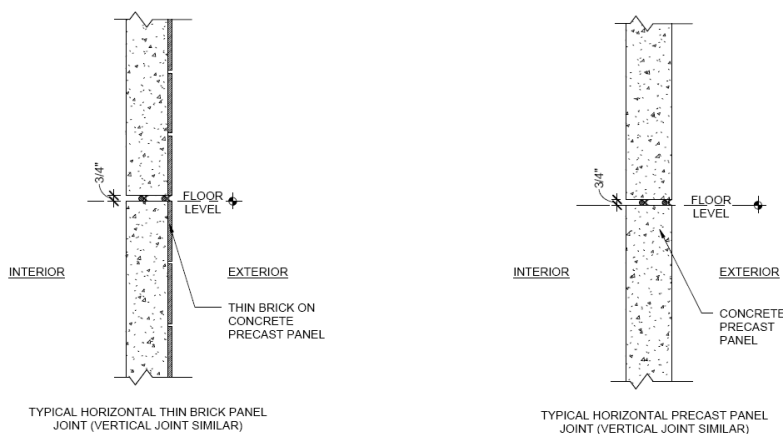
Cast in place concrete

Cast-in-place concrete includes formwork, reinforcement, concrete materials mixture design for the footing foundation walls, slabs on grade, building walls and so on. All of the 11 levels of the building need concrete pour.

Precast Concrete

Clips, hangers, bearing pads and other accessories required for connecting architectural precast concrete units are used to support members and backup materials. Architectural precast concrete level, plumb, and square within specified allowable tolerances are erected. Temporary supports and bracing are provided to maintain position, stability and alignment as units are being permanently connected connect precast cu in position by bolting, welding and grouting. At bolted connections, the building uses lock washers, tack welding to prevent loosening of nuts after final adjustment. Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast unites.

Reinforcing bars are ASTM A 615/A 615M GRADE60 DEFORMED



Masonry

The masonry used on the South Patient Tower is used for load bearing purposes. Both CMUs and new face bricks are used for infill and repairs at EBT. Reinforcing steel along with mortar and grout Masonry joint, reinforcement ties and anchors will be used for both interior and exterior walls. And masonry joint reinforcement for exterior walls is hot-dip galvanized carbon steel wire, which for side roads and veneer ties is W2.8 OR 0.188-Inch diameter. Masonry contains reinforcing steel in grouted cell.

Mechanical System

The main mechanical system room is located on the fifth floor of the building. The system includes totally six air handling unites and piping system, which provide oxygen, medical air and medical vacuum. System type distribution the fire suppression system in place is a wet sprinkler pipe system. In new sprinkler zone assemblies, water flow switches and valve tampers are furnished and installed. The patient elevator machine room in the penthouse, which has three geared elevator machines, is located on the roof of the building that Escalator will be installed from the ground floor to the 1st floor.

Electrical System

Dominion Virginia Power is in charge to set the South Patient Tower transformers and pulled the primary feeders into the Existing Tower Building vault. The six transformers are located outside the west side of the building. Truland Service was able to pull the feeders from the Transformers into the Switchgear in preparation for Permanent Power and continue to construct the Main Electrical Switchgear room.

Curtain wall

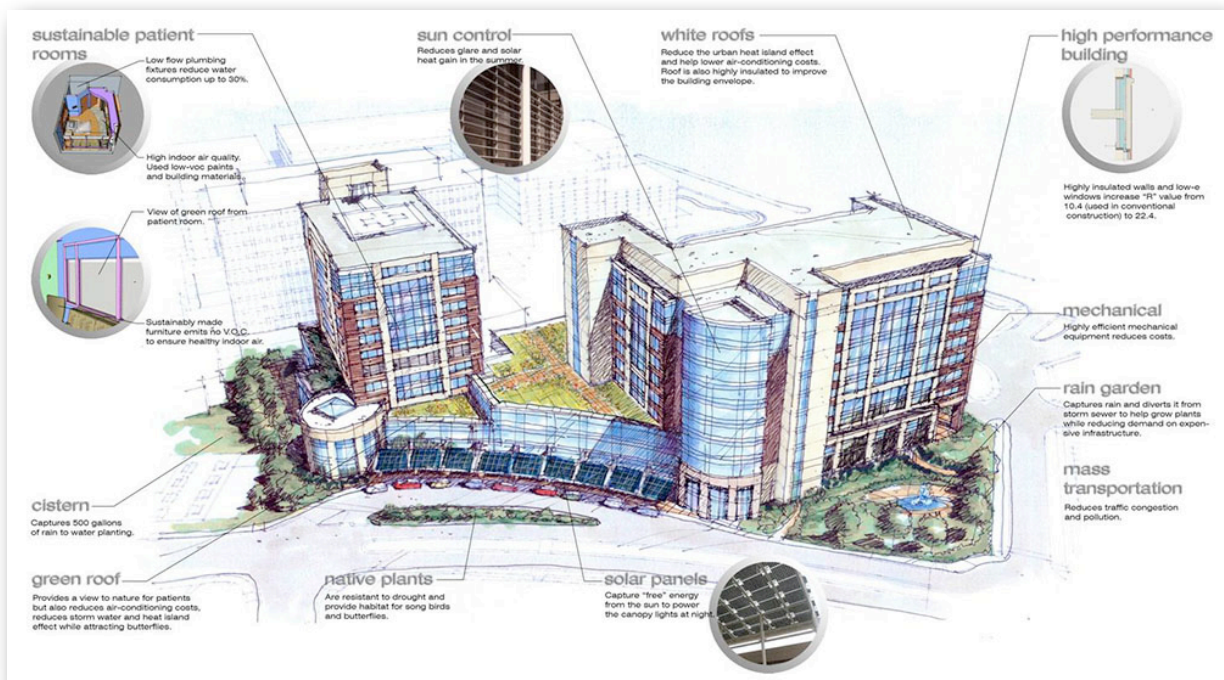
The curtain wall on the South Patient Tower is to be constructed on all south, east and west sides of the building. The curtain wall is made up of aluminum and glass with metal panels glazed into the curtain wall. Since the south side will look curved, the glass is made up of segmented glass pieces.

Support of excavation

Excavation consists of the removal of material encountered to sub-grade elevations and the reuse or disposal of materials removed. Basically no excavation support is needed.

LEED

The design and project team on Inova Fairfax Hospital South Patient Tower are striving to achieve LEED silver certification on this project. The major sustainable features include green roof, rain gardens, water cisterns and so on. The “Green” design also includes low-flow plumbing, low- or no-VOC buildings materials and furniture. The new tower will utilize the latest technology and design for a patient centered, environmentally sustainable facility. Here is the picture from Wilmot Sanz Architect Inc. Showing the major green features in the design.



Building Cost Summary

The actual construction costs are based on a Schedule of Values report provided by the Construction Manager.

Original Construction Cost	\$ 76,014,000
Current Contract Value	\$75,704,832
Cost/ SF	\$ 325/ SF

Though the major building system costs are not provided by the owner. Some of the costs are based on the RS Means Cost Work Report.

***Refer to Appendix C for Project Schedule Summary**

Building Systems Cost:

System	Total Cost	Cost per Square Foot
Mechanical System	\$7,930,500	\$33.89
Electrical System	\$6,656,500	\$28.45
Structural System	\$29,888,500	\$127.73
HVAC/Plumbing System	\$5,059,500	\$21.62
Fire Protection	\$672,000	\$2.87
Elevators	\$1,510,500	\$6.46

RS Means Estimate:

*Refer to **Appendix C** for RS Means Cost Works Report

Perimeter	2,000LF
Square Footage	234,000SF
Floor Height	12.00LF
Cost Per Square Foot	\$324.96
Total Building Cost	\$76,040,000
Actual Building Cost	\$ 76,014,000

MEP System Assembly Cost Estimate

*Refer to **Appendix A** for MEP System Assembly Cost Estimate

Cost Comparison

There is a slightly amount of differences of the building cost between the actual cost and the RS Means estimate cost. The causes can be the location factors, the building information set up in the RS Means cost estimate program. It may also because of some missing components of the building construction process. Besides these factors above, the cost estimate is relatively close to the actual cost.

Site Plans

*Refer to Appendix D for Site Plan

The site of the South Patient Tower is located in the south side of the existing hospital building, which used to be the main entrance of the existing building. So the landscape of the area will be redesigned and re-functioned. On the east side of the tower is the site for Women Hospital, which will be constructed later. And next to the Women Hospital site is the Emergency department of the hospital with the temporary parking lot in front of it. As shown in pictures below.



FIGURE1:EMERGENCY DEPARTMENT AND PARKING LOT

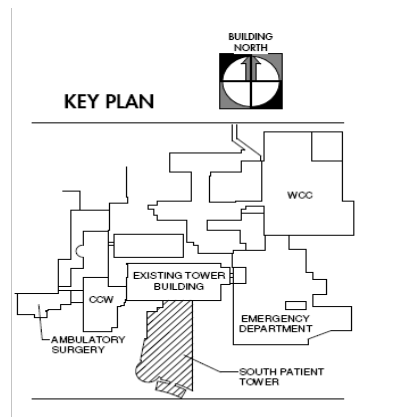


FIGURE2: KEY PLAN

Both the tower crane and the lay-down area will be located on the east down south side of the building.



FIGURE3: TOWER CRANE



FIGURE4: LAYDOWN AREA

Local Conditions



The Inova Fairfax Hospital South Patient Tower is located on 3300 Gallows Road Falls Church, Va. The city has a total area of 2.2 square miles, all of it land. The center of the city is the crossroad of VA State Route 7. The Tripps Run watershed drains two-thirds of the city of falls church, while the Four Mile Run watershed drains the other third. The ground water quality is generally good in Virginia. This vital resource is threatened by many potential contaminants and there have been isolated cases of serious ground water pollution in the state.

Owner will employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soil to verify that soils comply with specified requirements and to perform required field and laboratory testing.

Existing utilities do not interrupt existing utilities serving facilities occupied by the owner or others except when permitted in writing by the architect and then only after acceptable temporary utility services have been provided. A minimum 48 hours notice to the architect and receive written notice to proceed before interrupting any utility. Coordinate with utility companies to shut off services if lines are active.

Client Information



Inova Fairfax Hospital, Inova Health System's flagship hospital, is an 833-bed, nationally recognized regional medical center serving the Washington, D.C., metro area. The hospital is consistently ranked among the top healthcare providers in the United States.

Special emphasis on a safe, healing environment for adult patients, focusing on the specific needs of the medical/surgical patient, who is often 65 years or older. Cost, quality, schedule, and safety are some of the key areas of focus for this project. While cost, quality, and schedule are important, nothing is more important to this client than the safety of its patients and the workers on site.

The existing old main building is over 40 years old, which results in its lack of private rooms and the inadequate mechanical and electrical systems. Because of the growing demand of the current patient and families, the new patient tower was constructed. The new tower includes the following highlights and features:

- Physician, nurse and staff input helped determine building design
- Focuses on the specific needs of the medical/surgical patient, who is often 65 years or older
- Special emphasis on a safe, healing environment for adult patients
- 360-degree clinical access to ICU patients
- Patient monitoring systems on all floors
- Strategically positioned workstations to ensure patient privacy while enhancing monitoring capabilities
- “Green” design includes low-flow plumbing, low- or no-VOC buildings materials and furniture, living roof with water cisterns and rain gardens

Staffing Plan

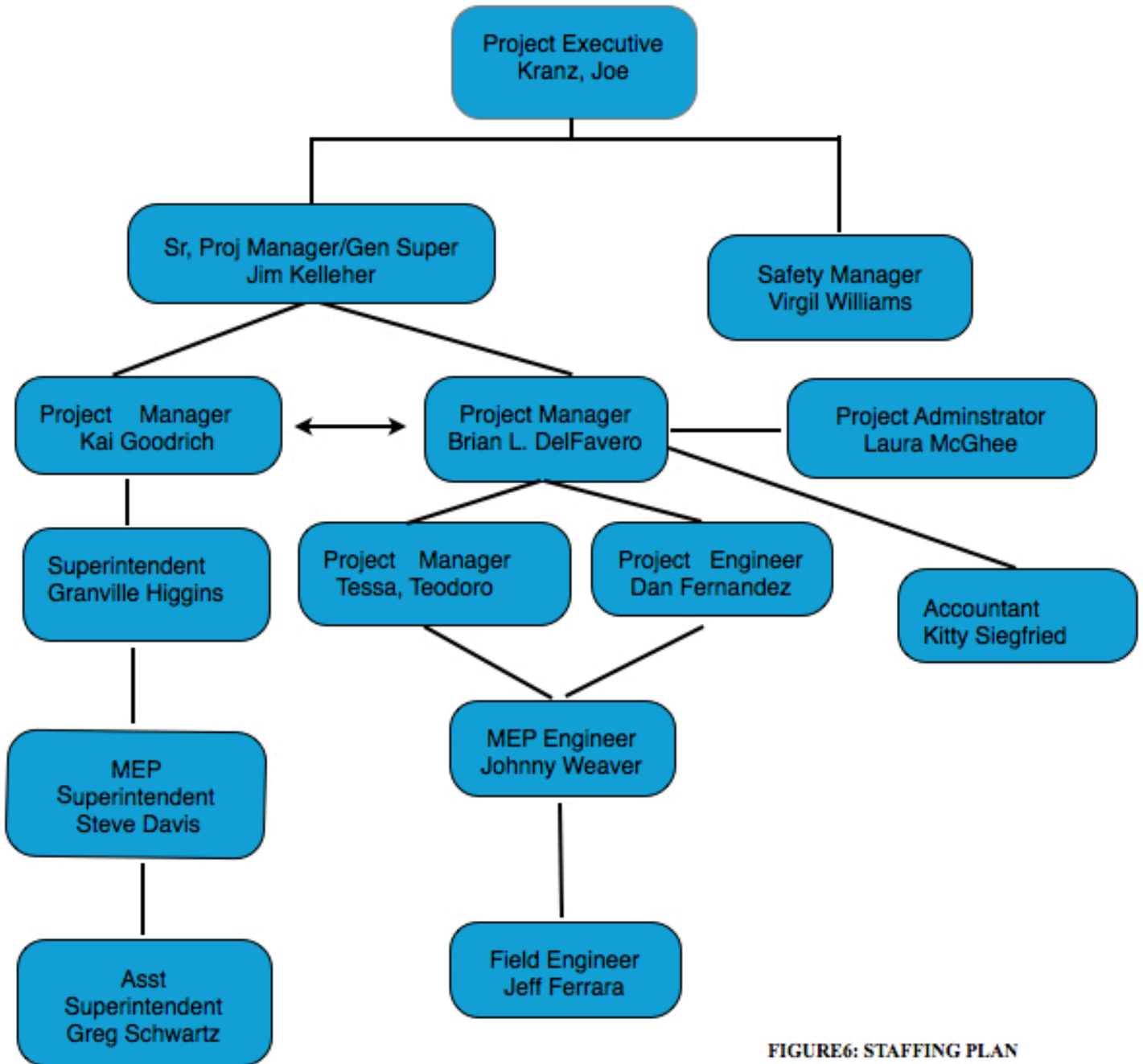
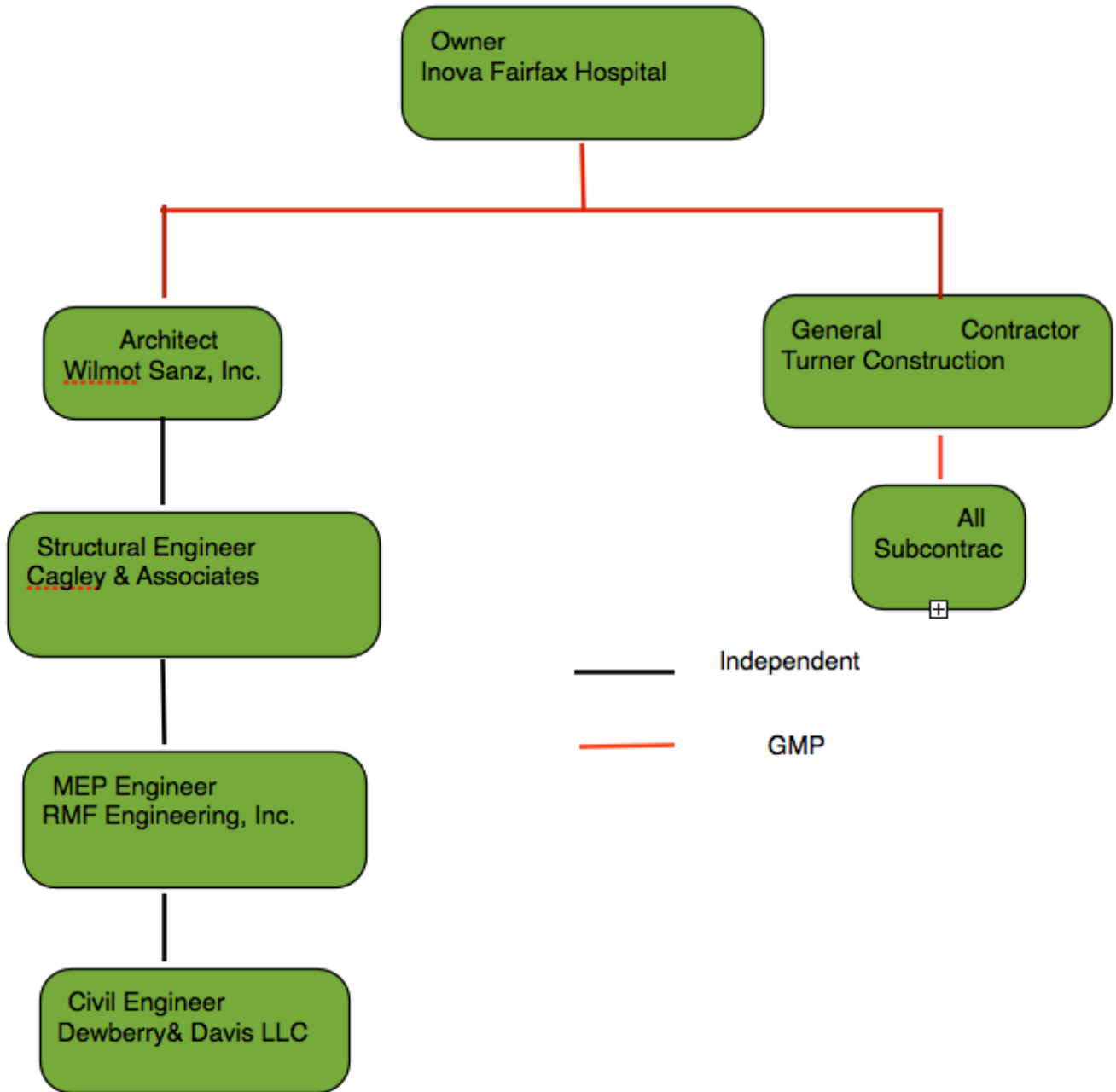


FIGURE6: STAFFING PLAN

The figure 6 above presented the Turner's managing staff plan for the Inova Fairfax Hospital South Patient Tower project. Turner has put great effort on choosing their expertise to deliver a final product that will meet the client's needs. As outlined in the organizational chart above, it involves a number of different players that play a key role. First is the project executive who oversees the entire project. Underneath are the senior project manager and the safety manager who reports directly to the safety system such as OSHA. And followings are the project managers and engineers with superintendent below. The staff sizes vary on each project mainly depending on the sizes and complexity of the project.

Project Delivery System



The Project delivery method is Design- bid-build. Turner Construction acts as the general contractor of the project along with the architect and engineering firms to work on the design and construction work. The final BIM is coordinated by Turner construction instead of each engineering firm.

Appendix A

MEP Systems Assemblies Cost Estimate

Items	Quantity	Unit	MAT. COST	INST. COST	TOTAL COST
Elevator					
Passenger,2500LB. 10 floor 200FPM	4		318500	107500	1704000
Hospital 3500LB. 10 floor 200PFM	4	EA	316300	107500	1695200
Escalator					
15ft height 32"width metal balustrade	2	EA	88000	44200	264400
Plumbing					
Water Closet system	120	EA	1750	795	305400
Urinal system	120	EA	590	765	162600
Standard pipeing fitting Copper tubing	10000	LF	5.7	8.2	139000
Rain water drainage	5000	LF	285.89	642	4639450
Lavatory system	480	EA	680	680	652800
Plumbing fixture	300	EA	1808.85	1878	1106055
HVAC					
Energy Supply	10	EA	3937.5	3587.5	75250
Large Heating system, electric boiler	10	EA	33246.2	27293.8	605400
Boilers, Hot water& Steam	10	EA	4200	1350	55500
cooling generating systems	2	EA	20564.7	23557.15	88243.7
terminal& package units	12	EA	2069.08	1840	46908.96
Electrical					
High Voltage shielded conductors	1000	LF	12.33	23.31	35640
Electric Service 3phase 4 wire	5000	LF	960	920	9400000
Feeder	4000	CLF	7.05	11.11	72640
Switchgear	20	EA	13625	5083	374160
Receptacle	234000	EA	1.33	3.6	1153620
Miscellaneous Power	10000	LF	0.17	0.56	7300
Lighting and Branch Wiring	100	EA	677.27	905.72	158299
Communication and Security	1000	EA	9.74	3.03	12770
Generators	100	EA	1163.33	259.47	142280
					0
					0
				TOTAL=	21192916.66

Appendix B

Summary Schedule



Appendix C

RS Means Square Foot Estimate

Estimate Name:	inova	
Building Type:	Hospital, 4-8 Story with Precast Concrete Panels With Exposed Aggregate / R/Conc. Frame	
Location:	FAIRFAX, VA	
Story Count:	12	
Story Height (L.F.):	12	
Floor Area (S.F.):	234000	
Labor Type:	Union	
Basement Included:	Yes	
Data Release:	Year 2010 Quarter 3	Costs are derived from a building model with basic components.
Cost Per Square Foot:	\$324.96	Scope differences and market conditions can cause costs to vary significantly.
Building Cost:	\$76,040,000	Parameters are not within the ranges recommended by RSMMeans.

		% of Total	Cost Per S.F.	Cost
A Substructure		4.50%	\$10.75	\$2,516,500
A1010	Standard Foundations Strip footing, concrete, reinforced, load 14.8 KLF, soil bearing capacity 6 KSF, 12" deep x 32" wide Spread footings, 3000 PSI concrete, load 400K, soil bearing capacity 6 KSF, 8' - 6" square x 27" deep		\$8.25	\$1,929,500
A1030	Slab on Grade Slab on grade, 4" thick, non industrial, reinforced		\$0.37	\$86,000
A2010	Basement Excavation Excavate and fill, 10,000 SF, 8' deep, sand, gravel, or common earth, on site storage		\$0.24	\$56,000
A2020	Basement Walls Foundation wall, CIP, 12' wall height, pumped, .52 CY/LF, 24.29 PLF, 14" thick		\$1.90	\$445,000
B Shell		31.90%	\$76.04	\$17,793,500
B1010	Floor Construction Cast-in-place concrete column, 16" square, tied, 400K load, 12' story height, 251 lbs/LF, 4000PSI Cast-in-place concrete column, 20" square, tied, 600K load, 12' story height, 394 lbs/LF, 4000PSI Flat slab, concrete, with drop panels, 6" slab/2.5" panel, 12" column, 15'x15' bay, 75 PSF superimposed load, 153 PSF total load		\$24.23	\$5,670,000

	Waffle slab, cast-in-place concrete, 12" deep rib, 18" column, 30'x30' bay, 75 PSF superimposed load, 204 PSF total load			
B1020	Roof Construction		\$1.53	\$358,000
	Floor, concrete, beam and slab, 35'x35' bay, 40 PSF superimposed load, 16" deep beam, 14" slab, 174 PSF total load			
B2010	Exterior Walls		\$35.12	\$8,219,000
	Exterior wall, precast concrete, flat, 8" thick, 10' x 10', white face, 2" rigid insulation, low rise			
B2020	Exterior Windows		\$13.72	\$3,210,000
	Windows, aluminum, sliding, insulated glass, 5' x 3'			
B2030	Exterior Doors		\$0.72	\$169,500
	Door, aluminum & glass, with transom, full vision, double door, hardware, 6'-0" x 10'-0" opening			
	Door, aluminum & glass, with transom, non-standard, double door, hardware, 6'-0" x 10'-0" opening			
	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening			
B3010	Roof Coverings		\$0.69	\$161,500
	Roofing, single ply membrane, reinforced, PVC, 48 mils, fully adhered, adhesive			
	Insulation, rigid, roof deck, composite with 2" EPS, 1" perlite			
	Roof edges, aluminum, duranodic, .050" thick, 6" face			
	Flashing, copper, no backing, 16 oz, < 500 lbs			
B3020	Roof Openings		\$0.02	\$5,500
	Roof hatch, with curb, 1" fiberglass insulation, 2'-6" x 3'-0", galvanized steel, 165 lbs			
C Interiors		17.20%	\$40.93	\$9,578,500
C1010	Partitions		\$6.42	\$1,503,000
	Metal partition, 5/8" vinyl faced gypsum board face, 5/8" fire rated gypsum board base, 3-5/8" @ 24", same opposite face, no insulation			
	Gypsum board, 1 face only, 5/8" with 1/16" lead			
C1020	Interior Doors		\$10.63	\$2,487,500
	Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"			
	Door, single leaf, kd steel frame, metal fire, commercial quality, 3'-0" x 7'-0" x 1-3/8"			
C1030	Fittings		\$0.93	\$217,000
	Partitions, hospital curtain, ceiling hung, poly oxford cloth			
C2010	Stair Construction		\$1.22	\$284,500
	Stairs, steel, cement filled metal pan & picket rail, 12 risers, with landing			
C3010	Wall Finishes		\$6.68	\$1,562,000
	Glazed coating			
	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 2 coats			
	Vinyl wall covering, fabric back, medium weight			
	Ceramic tile, thin set, 4-1/4" x 4-1/4"			
C3020	Floor Finishes		\$8.66	\$2,026,500
	Composition flooring, epoxy terrazzo, maximum			

	Terrazzo, maximum		
	Vinyl, composition tile, maximum		
	Tile, ceramic natural clay		
C3030	Ceiling Finishes	\$6.40	\$1,498,000
	Plaster ceilings, 3 coat prl, 3.4# metal lath, 3/4" crc, 12"OC furring, 1-1/2" crc, 36" OC support		
	Acoustic ceilings, 3/4" mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support		
D Services		39.10%	\$93.29
			\$21,829,000
D1010	Elevators and Lifts	\$6.46	\$1,510,500
	Traction, geared hospital, 6000 lb, 6 floors, 12' story height, 2 car group, 200 FPM		
D2010	Plumbing Fixtures	\$11.20	\$2,621,000
	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, raised deck, PE on CI, 42" x 21" dual level, triple bowl		
	Laundry sink w/trim, PE on CI, black iron frame, 48" x 21" double compartment		
	Service sink w/trim, PE on CI, wall hung w/rim guard, 22" x 18"		
	Bathtub, recessed, PE on CI, mat bottom, 5'-6" long		
	Shower, stall, baked enamel, terrazzo receptor, 36" square		
	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH		
D2020	Domestic Water Distribution	\$6.62	\$1,548,000
	Electric water heater, commercial, 100< F rise, 1000 gal, 480 KW 1970 GPH		
D2040	Rain Water Drainage	\$0.50	\$117,000
	Roof drain, CI, soil, single hub, 5" diam, 10' high		
	Roof drain, CI, soil, single hub, 5" diam, for each additional foot add		
D3010	Energy Supply	\$3.31	\$773,500
	Hot water reheat system for 200,000 SF hospital		
D3020	Heat Generating Systems	\$0.37	\$85,500
	Boiler, electric, steel, steam, 510 KW, 1,740 MBH		
D3030	Cooling Generating Systems	\$2.60	\$607,500
	Chiller, reciprocating, water cooled, standard controls, 100 ton		
	Chiller, reciprocating, water cooled, standard controls, 150 ton		
	Chiller, reciprocating, water cooled, standard controls, 200 ton		
D3090	Other HVAC Systems/Equip	\$30.93	\$7,237,500
	Ductwork for 200,000 SF hospital model		
	Boiler, cast iron, gas, hot water, 2856 MBH		
	Boiler, cast iron, gas, hot water, 320 MBH		
	AHU, rooftop, cool/heat coils, VAV, filters, 5,000 CFM		
	AHU, rooftop, cool/heat coils, VAV, filters, 10,000 CFM		
	AHU, rooftop, cool/heat coils, VAV, filters, 20,000 CFM		
	VAV terminal, cooling, hot water reheat, with actuator / controls, 200 CFM		
	AHU, rooftop, cool/heat coils, VAV, filters, 30,000 CFM		

	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 1500 CFM		
	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 2750 CFM		
	Commercial kitchen exhaust/make-up air system, rooftop, gas, 5000 CFM		
	Plate heat exchanger, 400 GPM		
D4010	Sprinklers	\$2.47	\$579,000
	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 10,000 SF		
	Wet pipe sprinkler systems, steel, light hazard, each additional floor, 10,000 SF		
	Standard High Rise Accessory Package 8 story		
D4020	Standpipes	\$0.40	\$93,000
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, 1 floor		
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, additional floors		
	Cabs, hose rack assembly, & extinguisher, 2-1/2" x 1-1/2" valve & hose, steel door & frame		
	Alarm, electric pressure switch (circuit closer)		
	Escutcheon plate, for angle valves, polished brass, 2-1/2"		
	Fire pump, electric, with controller, 5" pump, 100 HP, 1000 GPM		
	Fire pump, electric, for jockey pump system, add		
	Siamese, with plugs & chains, polished brass, sidewalk, 4" x 2-1/2" x 2-1/2"		
	Valves, angle, wheel handle, 300 lb, 2-1/2"		
	Cabinet assembly, includes. adapter, rack, hose, and nozzle		
D5010	Electrical Service/Distribution	\$3.39	\$792,500
	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 2000 A		
	Feeder installation 600 V, including RGS conduit and XHHW wire, 2000 A		
	Switchgear installation, incl switchboard, panels & circuit breaker, 2000 A		
D5020	Lighting and Branch Wiring	\$18.48	\$4,324,000
	Receptacles incl plate, box, conduit, wire, 20 per 1000 SF, 2.4 W per SF, with transformer		
	Wall switches, 5.0 per 1000 SF		
	Miscellaneous power, 1.2 watts		
	Central air conditioning power, 4 watts		
	Motor installation, three phase, 460 V, 15 HP motor size		
	Motor feeder systems, three phase, feed to 200 V 5 HP, 230 V 7.5 HP, 460 V 15 HP, 575 V 20 HP		
	Fluorescent fixtures recess mounted in ceiling, 0.8 watt per SF, 20 FC, 5 fixtures @32 watt per 1000 SF		
D5030	Communications and Security	\$2.35	\$551,000
	Communication and alarm systems, fire detection, addressable, 100 detectors, includes outlets, boxes, conduit and wire		
	Fire alarm command center, addressable with voice, excl. wire & conduit		
	Internet wiring, 8 data/voice outlets per 1000 S.F.		

D5090	Other Electrical Systems		\$4.23	\$989,000
	Generator sets, w/battery, charger, muffler and transfer switch, diesel engine with fuel tank, 100 kW			
	Generator sets, w/battery, charger, muffler and transfer switch, diesel engine with fuel tank, 400 kW			
	Uninterruptible power supply with standard battery pack, 15 kVA/12.75 kW			
E Equipment & Furnishings		7.30%	\$17.49	\$4,091,500
E1020	Institutional Equipment		\$13.18	\$3,084,000
	Architectural equipment, laboratory equipment glassware washer, distilled water, economy			
	Architectural equipment, sink, epoxy resin, 25" x 16" x 10"			
	Architectural equipment, laboratory equipment eye wash, hand held			
	Fume hood, complex, including fixtures and ductwork			
	Architectural equipment, medical equipment sterilizers, floor loading, double door, 28"x67"x52"			
	Architectural equipment, medical equipment, medical gas system for large hospital			
	Architectural equipment, kitchen equipment, commercial dish washer, semiautomatic, 50 racks/hr			
	Architectural equipment, kitchen equipment, food warmer, counter, 1.65 KW			
	Architectural equipment, kitchen equipment, kettles, steam jacketed, 20 gallons			
	Architectural equipment, kitchen equipment, range, restaurant type, burners, 2 ovens & 24" griddle			
	Architectural equipment, kitchen equipment, range hood, including CO2 system, economy			
	Special construction, refrigerators, prefabricated, walk-in, 7'-6" high, 6' x 6'			
	Architectural equipment, darkroom equipment combination, tray & tank sinks, washers & dry tables			
E1090	Other Equipment		\$0.00	\$0
E2020	Moveable Furnishings		\$4.31	\$1,007,500
	Furnishings, hospital furniture, patient wall system, no utilities, deluxe , per room			
F Special Construction		0.00%	\$0.00	\$0
G Building Site Work		0.00%	\$0.00	\$0
Subtotal		100%	\$238.50	\$55,809,000
Contractor Fees (General Conditions,Overhead,Profit)		25.00%	\$59.63	\$13,952,500
Architectural Fees		9.00%	\$26.83	\$6,278,500
User Fees		0.00%	\$0.00	\$0
Total Building Cost			\$324.96	\$76,040,000

Appendix D

Site Plan

