DENNIS V. WALTER JR. | CONSTRUCTION MANAGEMENT

PHASE 2 NEW BUILDING, JOHN TYLER COMMUNITY COLLEGE

TECH ASSIGNMENT #1

Thesis Advisor: Chris Magent

10/5/2009

Image courtesy of Burt Hill

[Special thanks to the Gilbane Project Team, Burt Hill, and John Tyler Community College]

Phase 2 New Building
John Tyler Community College, Midlothian Campus
Midlothian, VA

PROJECT TEAM:

Owner:

Virginia Community College Systems

CM:

Gilbane

Architect:

Burt Hill

Civil Engineer:

Burgess and Niple

Structural Engineers:

Stroud Pence

MEP Engineers:

H.CYU Engineers

Telecommunications/Audio-Visual/Acoustics Engineers:

Shen Milsom Wilke

Cost Estimating Consultant:

Construction Consultants, Inc.

PROJECT OVERVIEW:

Function: Mixed Use Academic Building

Size: 60,000 SF Total, 61,001 Net SF

Height: 3 Stories

Construction Dates: May 2008 – October 2009

Delivery Method: CM @ Risk w/ GMP Contract

LEED® : Pursuing LEED® Silver Certification

STRUCTURAL SYSTEM:

Foundation: Reinforced concrete shallow spread footings, Below grade perimeter cantilevered concrete foundation walls, 4" ground floor slab-on-grade

Framing: Elevated slabs (4" lightweight 4000psi concrete over 1 1/2" x 20 gauge VLR composite deck) and roof deck (4" normal weight 4000psi concrete over 1 1/2" x 22 gauge type B composite deck) supported by typical W16 floor beams and W10 columns.

Façade: Masonry veneer backed up by a cold formed stud curtainwall, CMU (stair and elevator towers), precast concrete and metal paneling w/ steel stud

Roof: Steel roof decking supported by steel bar joists, beams, and columns

MECHANICAL SYSTEM:

- (4) 12,500 CFM AHU's serving Laboratory, Library, Classroom, and others on North End
- (1) 3,750 CFM AHU serving Office/Admin area on South End
- (4) 80 Ton Modular Chillers
- (1) 675 GPM Cooling Tower
- (2) 170 GPM Multi-Zoned Gas Fired Hot Water Storage Heaters
- (2) 1,200 MBH Hydronic Boilers constructed adjacent to Chilled Water Plant

SUSTAINABLE FEATURES:

- Green roof to filter and absorb rainwater, and reduce heat island effect while insulating the building.
- "Cool" Light Color Roofing to further reduce heat island effect at unplanted areas
- Modular chillers in the mechanical room eliminates the use of oil for the primary cooling equipment in the building
- Recycled content used in building materials such as drywall, fly ash in the concrete, and carpeting
- Natural daylighting sources reduce electrical consumption
- Energy efficient glass and motorized sunshades control solar heat gain, and allow solar shading
- Thermostats in every office to maximize occupants thermal comfort and control

ELECTRICAL SYSTEM:

- 968.2 kW Total Connected Load
- 842.3 kW Total Demand Load
- (1) 150 kW Generator
- 277 V Majority of Lighting System

ARCHITECTURE:

The exterior of the building is a combination of brick, precast concrete accents, metal panels, aluminum windows and an aluminum framed curtain wall complementing existing buildings on the Midlothian Campus. The layout of the building is designed to accommodate the science department, a library, student lounge, bookstore, and multipurpose room. Science labs on the third floor are the driving force for the building shape. The second floor is the primary entrance of the building from the north, and houses the library. The first floor has an entry on the south to accommodate the newly added south parking lot and contains the bookstore, multipurpose room and the student lounge.

Dennis V. Walter Jr. | Construction Management

special thanks to Burt Hill and Gilbane for photos and data

e-Portfolio: http://www.engr.psu.edu/ae/thesis/portfolios/2010/dxw5004/index.html

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Executive Summary

Technical Assignment 1 is a comprehensive report covering the Phase 2 New Building at John Tyler Community College's Midlothian Campus. It is located at 800 Charter Colony Parkway, Midlothian, Virginia. The report gives a summary of the existing conditions and scope of work.

This technical assignment analyzes many aspects of the Phase 2 New Building. The analysis includes the project schedule summary, building systems summary, project cost evaluation, site plan of existing conditions, local conditions, client information, project delivery system, and a staffing plan for the construction manager.

The Phase 2 New Building project is a 61,000 SF academic building that is the fourth building on the Midlothian Campus. The Phase 2 New Building was designed to accommodate the increasing enrollment of students at John Tyler Community College's Midlothian Campus. The three story building was designed as a mixed use building housing science laboratories, classrooms, an expanded library, a multi-purpose room, and additional commons space for faculty and students. This building follows a previously built building considered Phase 1 of the campus master plan.

The construction phase schedule roughly spans over an 18-month period with the time constraint of occupancy before a new fall semester begins. The project is striving for LEED® Silver rating, and a budget has been set by the Virginia Community College Systems. A negotiated GMP of roughly $18.5 million was agreed upon by Gilbane (the construction manager) and the Virginia Community College Systems (the owner) with an owner contingency to cover any changes in design. The steel structure, brick façade, and curtain wall are topped off by a large green roof covering roughly 8,000 SF of the roof area.

The project was delivered as a construction manager at risk contract. The CM staffing plan for the project includes a Regional Vice President, Project Executive, Project Manager, Superintendent, Project Engineer, and an Assistant Project Engineer.

The building is scheduled to turnover for final completion by October 30, 2009. It is currently pending final completion documents, several small punchlist items, and closeout activities.

Project Schedule Summary

(Actual schedule evaluation is based on a detailed schedule provided by Gilbane. The dates have been slightly altered for the convenience of this technical assignment.)

The design for the Phase 2 New Building at John Tyler Community College began late in 2007 through 2008. Gilbane was brought on board early during the design phase to assist with preconstruction services. The preconstruction activities included assisting the A/E and Owner during the design to keep the building within budget. Gilbane provided the estimating and constructability reviews and value analysis. After a design was finished, the project was put out to bid to multiple trade contractors in bid packages and Gilbane was awarded the contract for construction manager. Construction began shortly after with the Notice to Proceed issued early in 2008. The construction is currently wrapping up and the building has already been occupied for the fall semester at John Tyler Community College. The final completion and handover of the Phase 2 New Building is set for October 30, 2009.

Construction is broken up by floor. After site clearing and excavation, work on the foundation and superstructure began. This is including all footings, grade beams, below grade foundation walls, and slab on grade. MEP work begins rough-in and placement after excavation is completed and continues through the majority of the construction phase. Once the foundation activities finished, the structural steel and CMU walls began. The masonry and curtain wall façade followed steel erection until the building was fully enclosed by the envelope and roofing system. Then, interior trades could begin installations. Once the building was completely furnished and enclosed, the testing, balancing, and commissioning of the building systems could take place. The building had to be substantially complete to provide the owner with a month of move-in activities before the first day of classes on August 24, 2009.

See **Appendix A: Project Schedule Summary**.

Building Systems Summary

Work Scope	Yes	No
Demolition Required?		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	

Structural Steel Frame

The building will have a typical elevated 5 ½" slab (4" of lightweight 4000 psi concrete topping over a 1 ½" x 20 gauge VLR composite deck) supported by typical W16 floor beams and W10 columns. The roof deck is a typical 5 ½" slab (4" of normal weight 4000 psi concrete over a 1 ½" x 22 gauge type B composite deck) which is also supported by a typical W16 composite floor beam system.

The crane used to erect the structure was a 70 ton lattice boom crane with jib. The length was 175 ft including the 35 ft jib. The crane was on site for roughly five weeks.

Some of the challenges with steel erection were the sequencing of the pieces coming from the mill. Also, since this project is located in a seismic area in Virginia, the structural engineer had to add pieces of 1" flat plates which were connected in the field on the base of each column in the braced bay areas of the project. The flat plates had to be coordinated with each slab pour to be installed before the concrete was poured.

Figure 1, Steel Erection via Lattice Boom Crane

Cast in Place Concrete

The building sits on a 4", 3500 psi reinforced concrete slab on grade over a vapor retarder and 6" minimum depth of porous fill. The cast in place concrete is also used for the spread footings, column footings and foundation walls and is 4000 psi in these applications. For the elevated floor slabs, a 4" lightweight composite 4000 psi concrete is poured over the metal decking. The roof slab is a 4" normal weight 4000 psi concrete poured over the metal decking. The concrete was placed via pump truck for all of the foundations, slab on grade, and elevated slabs.

Precast Concrete

Some precast concrete was used at the parapet tops and for exterior window sills; however, the building does not contain of any major precast concrete paneling. The precast coping was placed using a boom truck.

Mechanical System

The building's mechanical room is located on the first floor on the northwest end of the building near the loading dock area. The building's five air handling units are located on the roof of the building. The Laboratory, Library, Classrooms, and other areas on the north end of the building are serviced by four (4) 12,500 CFM air handling units, while the remaining Offices and Administration areas on the south end of the building are serviced by one (1) 3,750 CFM air handling unit. The building is also serviced with four (4) 80 ton modular chillers. These chillers have adjustable frequency drives on compressors and sit on magnetic bearings to greatly reduce sound and vibration. The entire building is on a variable air volume (VAV) system. There is a 675 GPM cooling tower located on the roof and has a low noise fan feature. The building has two (2) 170 GPM multi-zoned gas fired hot water storage heaters for hot water. Also, two (2) 1,200 MBH hydronic boilers are constructed adjacent to the chilled water plant to service the building's heating.

The building is serviced with a wet pipe fire protection sprinkler system with pre-action risers servicing the upper floors. It is in accordance with NFPA and local fire codes. The fire stand-pipe connection is on the northwest side of the building near the loading dock area.

Electrical System

The main electrical service feeder enters from a Dominion Power pad mounted transformer into the first floor electrical room in the north end of the building. The emergency power comes from a 150kW generator equipped with an 8-hour operation fuel tank located next to the transformer on the north side of the building. The service is 3 Phase, 5 Wire, 480/277 V with a 2500A Main Switchboard.

Masonry

The exterior walls contain brick and CMU backup in some locations. The entrances to the building are enclosed with large scale ground-faced concrete masonry units. They provide a strong contrast to the predominantly red bricked building.

Curtain Wall

The curtain wall on the building exists in several locations. It includes a three-story monumental stair on the south side of the building. On the north side, there is two-story curtain wall covering an entrance to

the existing campus upper plaza on the second floor with an open breakout space on the third floor. Modular placement using a snorkel lift was used during the installation of the curtain wall.

Figure 2, Brick and Masonry Facade with Curtain Wall

Support of Excavation

The building pad was mainly excavated and stepped back at a 45-degree angle to allow for soil retention and ease of access around the perimeter of the excavation. The large structural retaining wall on the north side of the building on the ground floor level required dead-men and a kicked back excavation for formwork to be built around the wall and supported during the pouring and curing of the concrete.

Figure 3, Support and forming of north retaining wall

Green Roof

The building is covered with roughly 8,000 SF of green roofing. The green roof was placed on the roof in layers. The roof deck needed to be reworked to meet the roofing manufacturer's flatness requirement. The hot asphalt membrane was installed over the concrete roof deck followed by a modified protection sheet. Then, two layers of 2" extruded polystyrene insulation board was added over the modified protection sheet. A drain mat was laid over the insulation board. Then, the final growing medium was installed over the drain mat surface. Walkways were also installed around the green roof areas for mechanical systems access and green roof maintenance.

Figure 4, Green Roof Installation

Figure 5, Green Roof Plantings

LEED® Certification

Gilbane has worked closely with the Architect (Burt Hill), MEP Engineer (H.CYU), Structural Engineer (Stroud Pence), Civil Engineer (Burgess and Niple), and Owner (Virginia Community College Systems and John Tyler Community College) throughout the design and construction phase to ensure that the project remain on track to receive the project goal for a LEED® Certification.

The project is currently on track to receive a LEED® Certified rating. The project has potential to reach the Silver rating. A Silver rating is achievable if several of the possible additional points are achievable. The building is currently under review for the possible additional points, and a LEED® checklist and plan has been in place since the project's beginning by Gilbane. The current LEED® scorecard for the project shows a LEED® Certified rating, but currently the building is pending review of credits for Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, and Innovation & Design. The building may also receive an additional point after one year of operation when the contracted enhanced commissioning agent performs commissioning review of the building systems.

Project Cost Evaluation

(Actual cost evaluation is based on the estimates and costs provided by Gilbane. The numbers have been somewhat rounded off for the purpose of this technical assignment.)

Square Footage of New Building: 61,001 SF

Building Construction Cost (does not include Excavation / Site Utilities):

- Actual: $14,241,600
- Per SF: $234

Total Project Cost:

- Actual: $18,574,000
- Per SF: $305

Major Building Systems:

- HVAC/Plumbing
  - Actual: $3,779,000
  - Per SF: $62.95
- Electrical
  - Actual: $1,333,000
  - Per SF: $21.85
- Drywall and ACT (Finishes)
  - Actual: $1,117,000
  - Per SF: $18.31
- Steel
  - Actual: $952,200
  - Per SF: $15.60
- Masonry
  - Actual: $926,300
  - Per SF: $15.18
- Concrete
  - Actual: $768,800
  - Per SF: $12.60
- Glass & Glazing
  - Actual: $745,200
  - Per SF: $12.22
- Roofing
  - Actual: $329,225
  - Per SF: $5.40

R.S. Means Square Foot Data:

(All information from R.S. Means 2008 Cost Works Square Foot Cost Estimator)

The 2008 R.S. Means Square Foot estimate contained a few options for college/university projects. The College Classroom Building, 2-3 story with Face Brick with Concrete Block Back-up and Steel Frame was the best suited for comparing the base cost of the actual building. Since the Phase 2 New Building is a multi-story college building, it should be similar to the R.S. Means' typical College Classroom Building. However, the Phase 2 New Building contains a library on the second floor, laboratories on the third floor, and several building features that are not typical to the R.S. Means building. Because of the differences in actual building use and components, the R.S. Means estimate should not be considered or used for establishing a rough estimate for construction.

The 2008 R.S. Means online Cost Works Square Foot Cost Estimator was used to obtain a Square Foot Estimate. The location, date, and size were the determining factors for a base cost. An overall building cost of $6,759,500 was determined using R.S. Means, which is significantly lower than the actual building construction cost of $14,241,600. The main attribute to this difference is that the Phase 2 New Building contains a campus library, and also an entire floor of laboratories. Also, the curtain wall and exterior façade, mechanical system, and interior finishes are much more elaborate than a typical R.S. Means college classroom building.

Estimate Name: **R.S. Means 2008 – Phase 2 New Building**	
Building Type:	**College, Classroom, 2-3 Story with Face Brick with Concrete Block Back-up / Steel Frame**
Location:	**RICHMOND, VA**
Stories:	**3**
Story Height (L.F.):	**15**
Floor Area (S.F.):	**61001**
Labor Type:	**Union**
Basement Included:	**No**
Data Release:	**Year 2008**
Cost Per Square Foot:	**$110.81**
Building Cost:	**$6,759,500**

Figure 6, 2008 R.S. Means Cost Works SF Estimate

D4 Cost Analysis:

(All information obtained using D4Cost 2002 Software)

The comparison of an existing building using D4 allows historical building project costs to be adjusted based on size, location, and time. The project selected to compare in D4 to the Phase 2 New Building is a 3-story Center for Sciences and Student Services in Houston, Texas which was built in 2006. The building is similar in many ways including brick, curtain wall, stone and metal paneling on the exterior façade. The building has a built-up roof comparable to Phase 2 New Building. Also, the structure is similar with steel framing and composite concrete floors on metal decking with stud and drywall as the interior walls. The building is similarly laid out with laboratories and student services space. This project was also in consideration for LEED® certification, but ultimately did not choose to be LEED® rated.

D4 Total Building Estimated Cost

- Actual: $14,153,760
- Per SF: $232.03

D4 Major Building Systems:

- HVAC
  - Estimate: $1,869,691
  - Per SF: $30.65
- Finishes
  - Estimate: $1,671,263
  - Per SF: $27.40
- Steel
  - Estimate: $1,494,410
  - Per SF: $24.50
- Plumbing
  - Estimate: $1,392,373
  - Per SF: $22.83
- Glass & Glazing
  - Estimate: $1,354,346
  - Per SF: $22.20
- Electrical
  - Estimate: $1,236,056
  - Per SF: $20.26

The D4 Cost Estimate is much more accurate than the R.S. Means estimate. This is attributed to being able to select data from a building much more similar in structure, size, quality, materials, systems and function. The D4 estimate of $14,153,760 is significantly closer to the actual building construction cost of $14,241,600. This proves that a rough estimate for construction costs only can be accurately found when using historical data from a similar type of building with relatively similar building systems.

Site Plan of Existing Conditions

The 117.2 acre site is located west of Charter Colony Parkway within the Midlothian Campus of John Tyler Community College in Chesterfield County, Virginia.

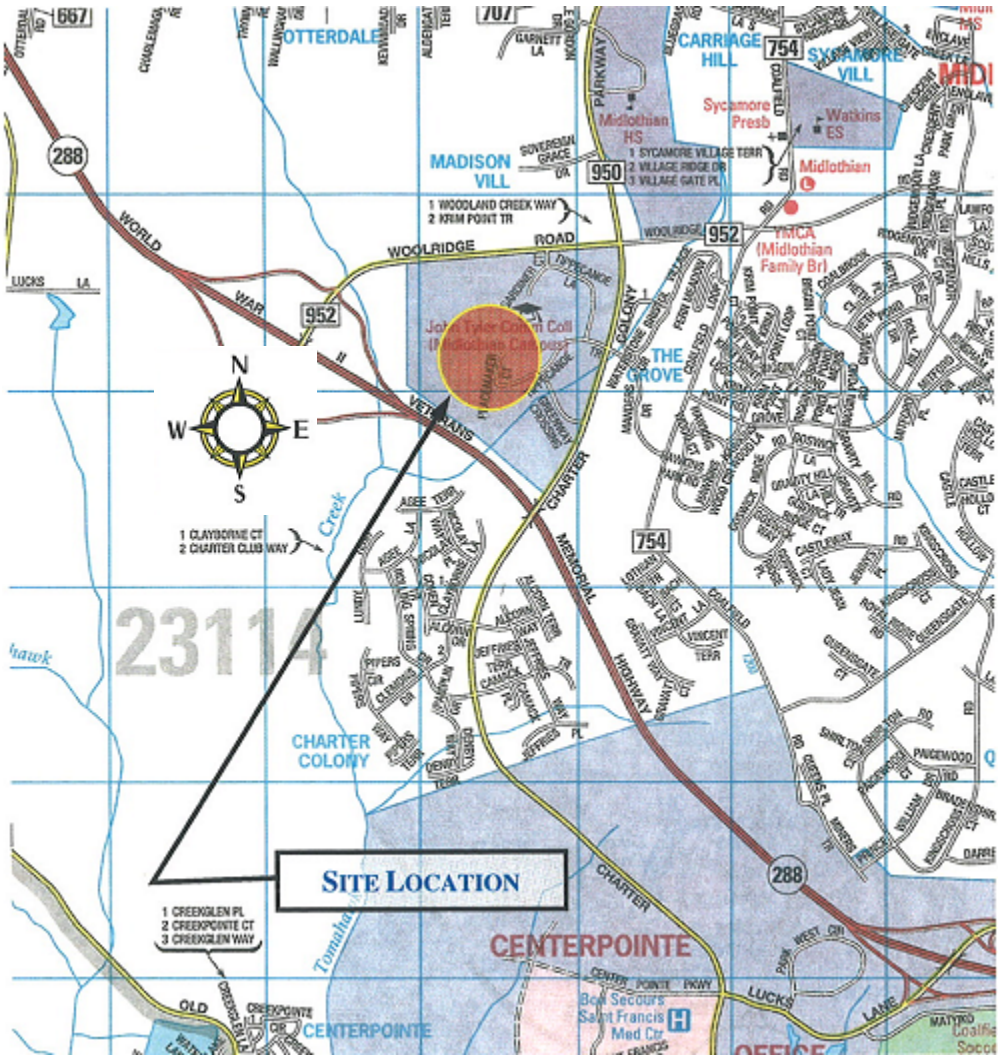


Figure 7, Image extracted from ADC Street Map Book, Chesterfield County, Virginia.

The site includes several existing campus buildings and two small tennis courts directly to the north and east of the building location. The tennis courts will be relocated before construction begins, while the surrounding existing buildings remain open. The relocation of utilities is minimal for this project, because of the presence of existing campus buildings.

Because of the topography of the site and access to existing buildings, the Phase 2 New Building will have entrances to the south on the first floor and to the north on the second floor. The existing plaza connecting the two existing buildings to the east will remain, but will be extended to the west to provide access to the new building.

Only the central portion of the site was developed prior to construction. The campus property was occupied by three buildings connected by nearby access roads, parking lots, and lawn areas. Other parts of the site are heavily wooded and undeveloped. The southwest edge of the site is bordered by a wide power line right-of-way. The north and eastern property boundaries are Woolridge Road and Charter Colony Parkway respectively. A stream runs through the southeast region of the site, and another runs through the northwest corner; both flow in a southeastern direction.

See **Appendix B: Site Plan of Existing Conditions**.

Local Conditions

The project has a large construction parking zone available for use during the construction phase. The parking is located on site and is fenced-in for the majority of construction. Construction traffic is directed from Charter Colony Parkway to a right-turn on Greenway Crossing. After turning on Greenway Crossing, vehicles must take a left on Tippercanoe Trail and then follow a temporary construction road for access to the site.

Since this project is LEED® rated. There is a large amount of construction materials that were diverted from the jobsite to recycling plants. The project team documented roughly 93% of their construction waste materials. The typical Chesterfield County Waste and Resource Recovery fee for construction and demolition is roughly $15.00 per pickup load according to the Chesterfield County Chamber of Commerce website.

There were a total of twenty-nine (29) soil test borings performed on the site to depths ranging from 15.0 to 49.0 feet below ground surface. The boring results typically encountered fill, low plastic clays, silts and elastic silts, sand, and gravel overlying weathered and intact rock. The majority of the onsite conditions are suitable for use as structural fill for slab-on-grade and pavement support. The geotechnical report concluded that the use of the existing site soils is suitable for footings, foundation walls, retaining walls, and slab-on-grade applications.

Groundwater was encountered in several of the soils tests at depths ranging from 29.0 to 46.0 feet below ground surface. Extensive dewatering was found to not be required. However, in deeper utility cuts and excavations temporary dewatering would be required in some areas. Therefore, the contractor should be prepared to handle surface water runoff and groundwater during construction.

Client Information

The 61,000-square-foot building is the first project in the Virginia Community College System to be registered under the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. To become LEED-certified, a project must earn credits in key areas that promote human and environmental health, including sustainable site design, water savings, energy efficiency, materials selection, and indoor environmental quality.

The new building, which houses science laboratories, classrooms, an expanded library, a multi-purpose room, and additional commons space for faculty and students, will help the College continue to meet rapidly increasing demand for classes at the College. John Tyler Community College's Midlothian Campus, which was built in 2000 and expected to meet community needs until 2010, grew so quickly that the campus reached full capacity in 2005. In 2006, the Virginia General Assembly approved construction of the much-needed second academic building. Master plans for the Midlothian Campus eventually call for a bell tower, amphitheatre and possibly sports fields.

The Virginia Community College System had agreed on a GMP that was within their budget, and contained an allowance for owner's contingency that would cover possible changes. In previous Midlothian Campus projects, the Virginia Community College System and the John Tyler Community College was not satisfied with the existing structures built; one of the existing buildings had ended in a legal case against a previous contractor due to leaky building enclosures and had excessive, bothersome mechanical equipment noise and vibrations. The expected quality of this new building is a water tight building that meets LEED® requirements with reduced mechanical noise and vibrations. There were no expected safety requirements by the owner, so Gilbane's extensive safety plan was adopted for this project.

Since this building is an educational facility on a college campus, there was a requirement set by the owner that substantial completion be prior to the start of a new fall semester. The sequencing of the building had to be planned in order to fulfill the occupancy requirement of a one month owner move-in prior to the new semester. In order for Gilbane to construct a building that the owner is satisfied with, they must produce a quality building with fully a functional, watertight exterior façade, achieve a LEED® rated status, have very minimal mechanical equipment noises and vibrations, and was within their budgeted plans.

Project Delivery System

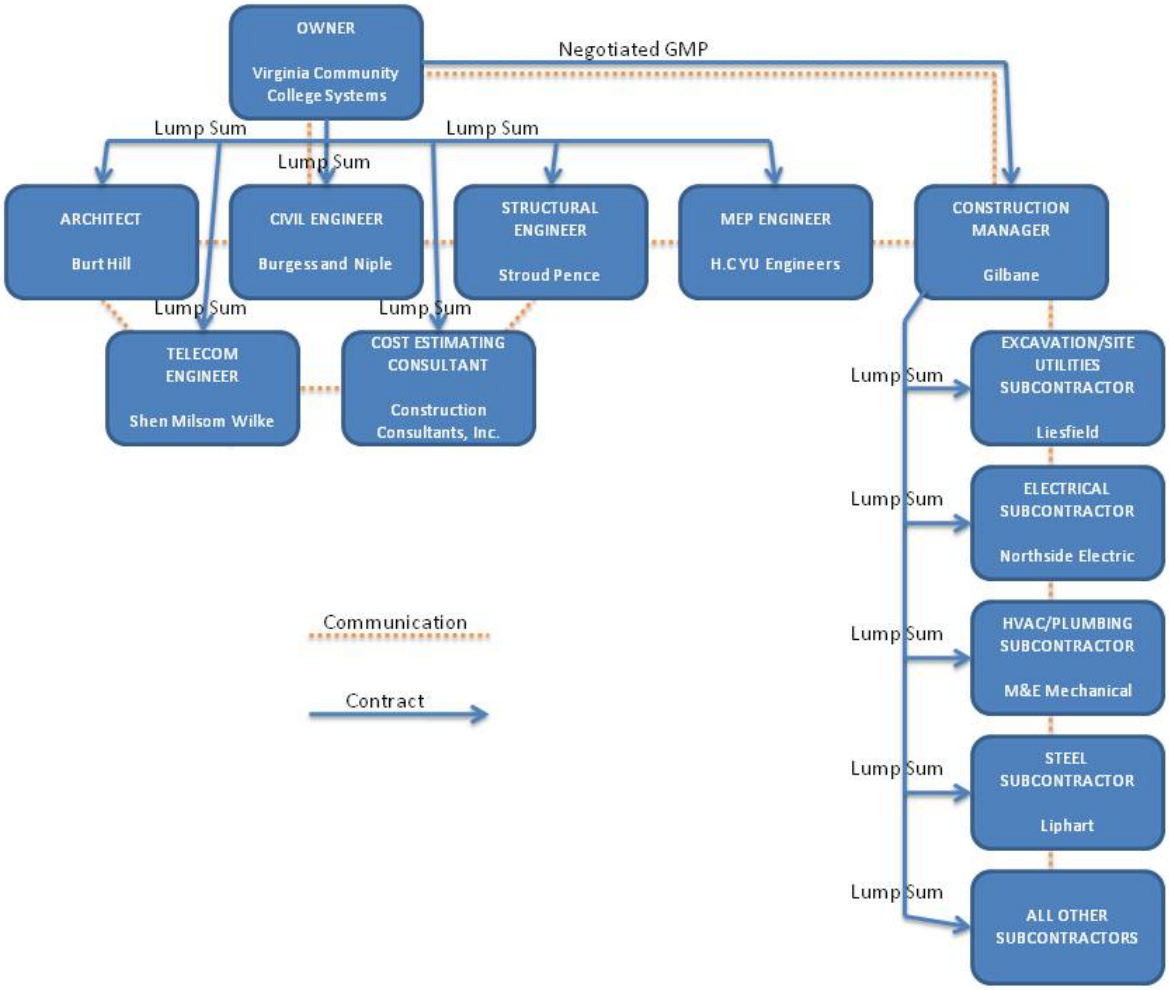


Figure 8, Project Delivery Diagram

The project delivery method is Construction Manager at Risk, with Preconstruction services as a separate prior contract with the owner. Gilbane was on board for preconstruction, and was awarded the contract based on a competitive bid since it is a public project. Gilbane's contract as a construction manager is a negotiated GMP or guaranteed maximum price. The owner (Virginia Community College Systems) holds the remaining contracts with the architect and other project players as lump sum contracts. The subcontractors are also held at lump sum contracts with Gilbane. This is a typical arrangement of contracting. Gilbane communicates directly with the owner, all of the project team players, and each of the subcontractors. The communication between the architect, construction manager, and owner are the most prominent lines of communication for the overall project's success, followed by the lines of communication between Gilbane and the Subcontractors performing the work.

The State of Virginia requires a minimum limit of liability of the following for insurance and certification. Worker's Compensation requirements fall under the Standard Virginia Workers Compensation Policy with statutory requirements and benefits. The Employer's Liability is a minimum of $100,000. A

$1,000,000 minimum for combined single limit general liability and $500,000 minimum for Automobile Liability is also required.

Staffing Plan

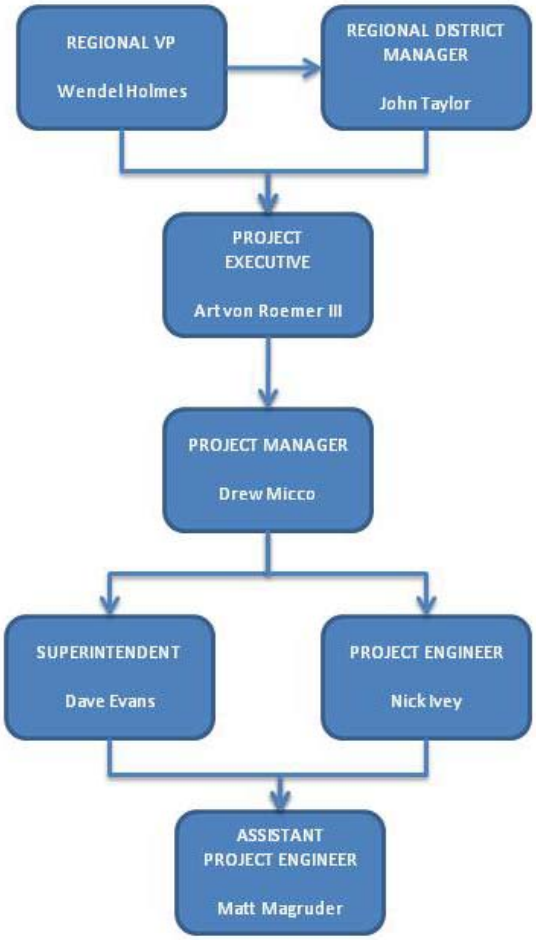


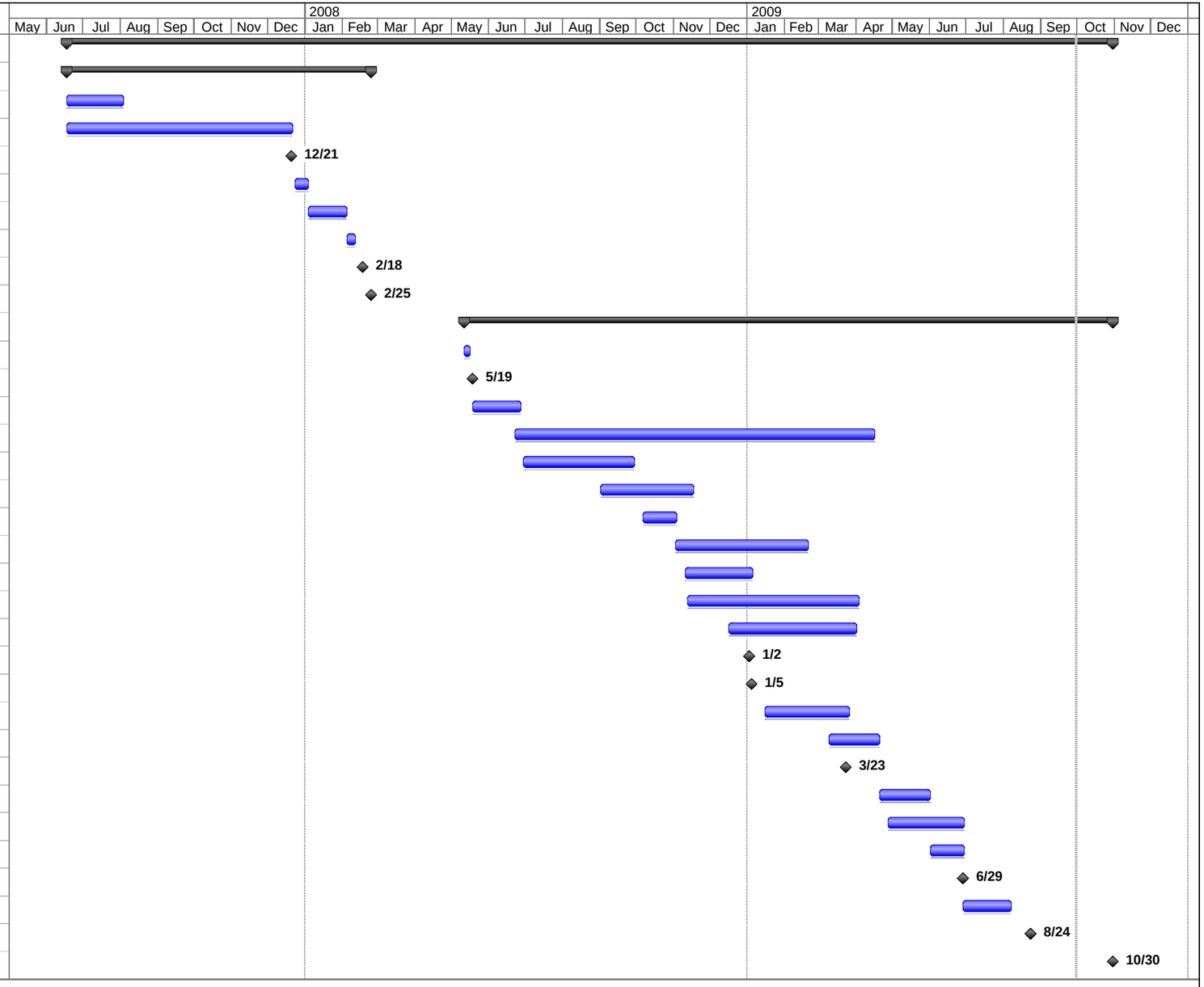
Figure 9, Construction Manager Staffing Plan

Gilbane's project team is based out of the Mid-Atlantic Regional Office in Laurel, Md. The Vice President of the region is Wendel Holmes. The Richmond District Manager, John Taylor, had overseen the project kickoff and stays in contact with the owner and architect for relations and major problem solving purposes. The Project Executive in charge of the success of the project, including project delivery and client satisfaction is Art von Roemer III.

On-site, the Project Manager, Drew Micco, oversees the daily operations of the construction process to ensure that the building is being built on time and on budget. He also is a key player in solving daily issues that occur within the project. Working under the Project Manager are the Superintendent and Project Engineer. The Superintendent on the project is Dave Evans, who manages and coordinates all the subcontractors working so the project remains on schedule. The Project Engineer, Nick Ivey, is involved with many aspects on the project and assists the Project Manager and Superintendent with all of the daily operations on-site. The Assistant Project Engineer is Matt Magruder, who also assists with the daily operations on the construction site.

Appendix A: Summary Schedule

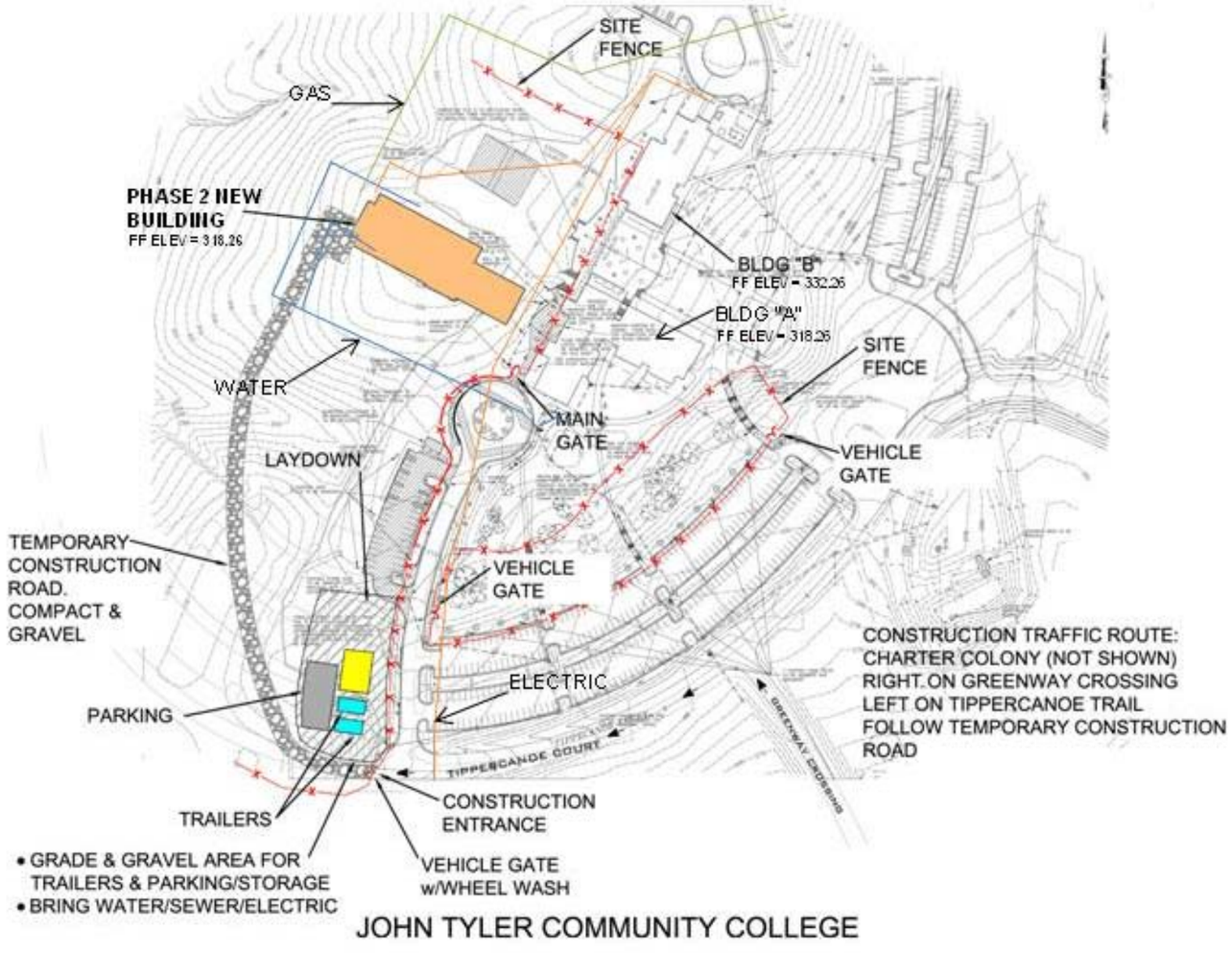
ID	Task Name	Duration	Start	Finish	Predecessors
1	**PHASE 2 NEW BUILDING**	**621 days**	**Mon 6/18/07**	**Fri 10/30/09**	
2	**PRE-CONSTRUCTION PHASE**	**180 days**	**Mon 6/18/07**	**Mon 2/25/08**	
3	CM at Risk Selection	35 days	Mon 6/18/07	Fri 8/3/07	
4	Design Phase	135 days	Mon 6/18/07	Fri 12/21/07	
5	100% Construction Documents	0 days	Fri 12/21/07	Fri 12/21/07	
6	Prepare Bid Documents	9 days	Mon 12/24/07	Thu 1/3/08	
7	Bid & Award Construction	22 days	Fri 1/4/08	Mon 2/4/08	
8	Prepare / Submit / Approve GMP	5 days	Tue 2/5/08	Mon 2/11/08	
9	GMP Approval	0 days	Mon 2/18/08	Mon 2/18/08	
10	Permit	0 days	Mon 2/25/08	Mon 2/25/08	
11	**CONSTRUCTION PHASE**	**386 days**	**Mon 5/12/08**	**Fri 10/30/09**	
12	Mobilize / Site Fencing	5 days	Mon 5/12/08	Fri 5/16/08	
13	Notice to Proceed	0 days	Mon 5/19/08	Mon 5/19/08	
14	Site Clearing / Excavation	31 days	Mon 5/19/08	Fri 6/27/08	
18	MEP	214 days	Mon 6/23/08	Thu 4/16/09	
15	Foundations and Slab on Grade	66 days	Mon 6/30/08	Mon 9/29/08	
16	Erect Steel and Decking	55 days	Tue 9/2/08	Mon 11/17/08	
17	Pour Floor Slabs	20 days	Tue 10/7/08	Mon 11/3/08	
19	Exterior Façade	80 days	Mon 11/3/08	Fri 2/20/09	
20	Interior Framing	40 days	Tue 11/11/08	Mon 1/5/09	
24	Interior Finishes	102 days	Thu 11/13/08	Fri 4/3/09	
21	Roof System	76 days	Wed 12/17/08	Wed 4/1/09	
22	Permanent Power	0 days	Fri 1/2/09	Fri 1/2/09	
23	Building Enclosed	0 days	Mon 1/5/09	Mon 1/5/09	
25	Elevators	50 days	Fri 1/16/09	Thu 3/26/09	
27	Furniture, Fixtures, and Equipment	30 days	Tue 3/10/09	Mon 4/20/09	
26	HVAC Operational	0 days	Mon 3/23/09	Mon 3/23/09	
28	Testing / Balancing / Commissioning	30 days	Tue 4/21/09	Mon 6/1/09	
29	Landscaping	45 days	Tue 4/28/09	Mon 6/29/09	
30	Punchlist	20 days	Tue 6/2/09	Mon 6/29/09	
31	Substantial Completion	0 days	Mon 6/29/09	Mon 6/29/09	
32	Owner Move-In	30 days	Mon 6/29/09	Fri 8/7/09	
33	First Day of Classes	0 days	Mon 8/24/09	Mon 8/24/09	
34	Final Completion / Turnover	0 days	Fri 10/30/09	Fri 10/30/09	



Project: Schedule
Date: Wed 9/30/09

Task Progress Summary External Tasks Deadline
Split Milestone Project Summary External Milestone

Appendix B: Site Plan of Existing Conditions



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PHASE 2 NEW BUILDING

No.	Description	Date

EXISTING CONDITIONS

Project number	JTCC	C100
Date	12.2.09	
Drawn by	DENNIS WALTER	
Checked by		Scale 1/8" = 1'-0"

10/2/2009 2:55:55 PM