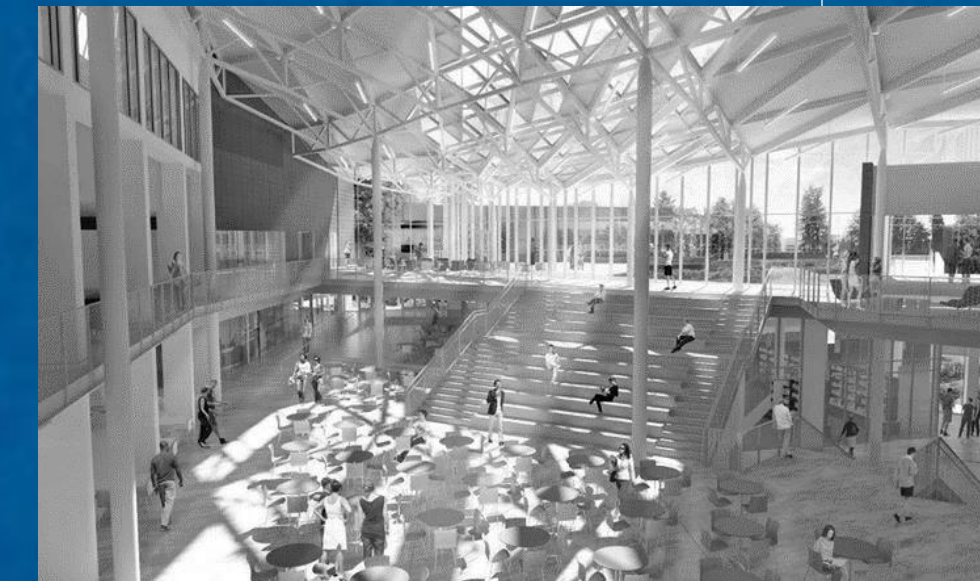


# 2 Cranez Construction

2 Cranez Construction  
HUB Expansion and Renovation  
Schedule  
Site Planning  
Estimates  
Cost Engineering  
Conclusion



HUB Expansion and Renovation  
The Pennsylvania State University  
University Park, Pennsylvania





# 2 Cranez Mission Statement

## 2 Cranez Construction

### Mission

Company Organization

HUB Expansion and Renovation

Schedule

Site Planning

Estimates

Cost Engineering

Conclusion



**2 Cranez Construction offers progressive and sustainable solutions in a way that leads the industry to a brighter future.**

## Core Values

- ✓ Safety
- ✓ People
- ✓ Quality
- ✓ Integrity
- ✓ Customer Satisfaction





## 2 Cranez Construction

Mission

Company Organization

HUB Expansion and Renovation

Schedule

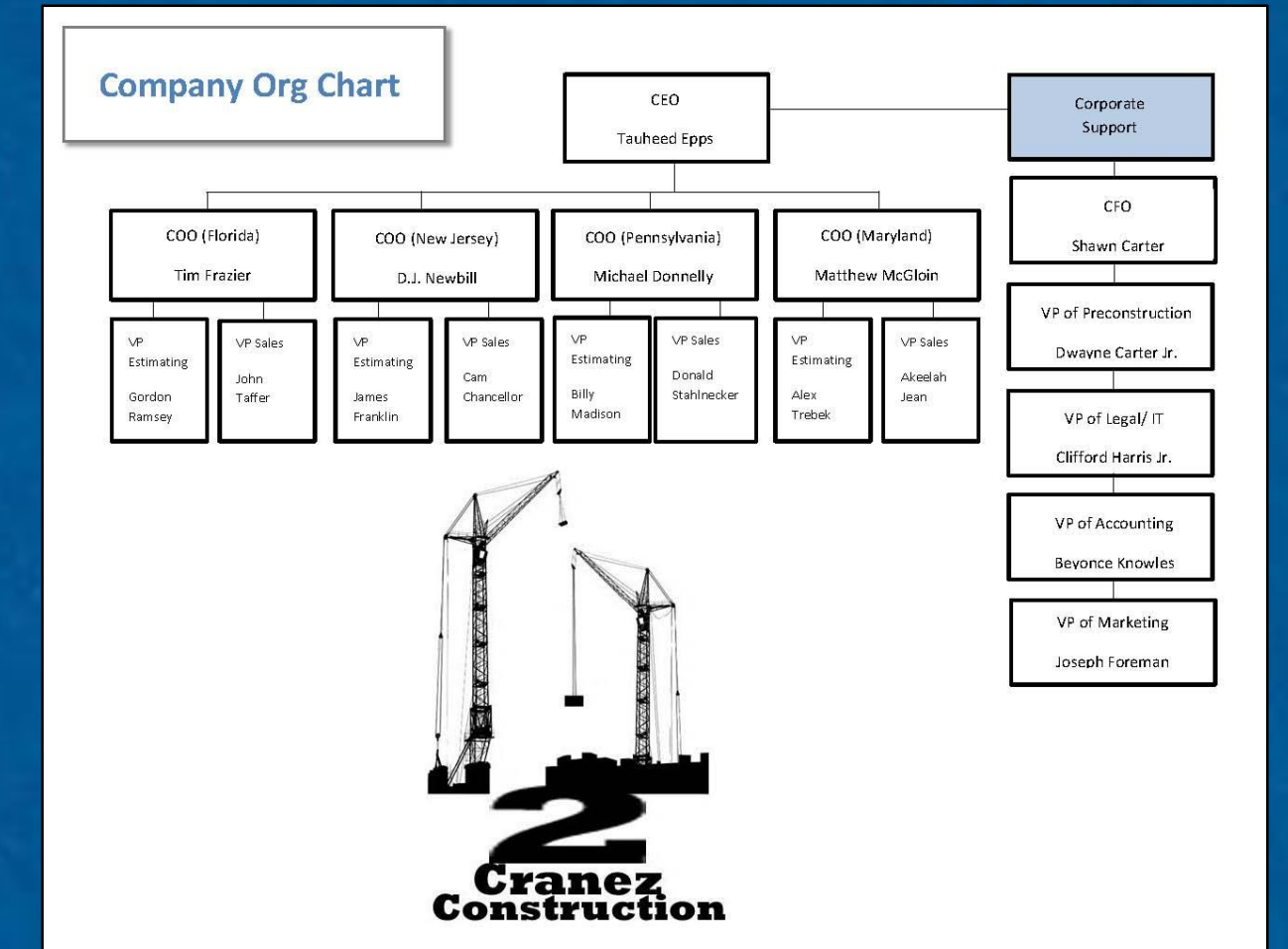
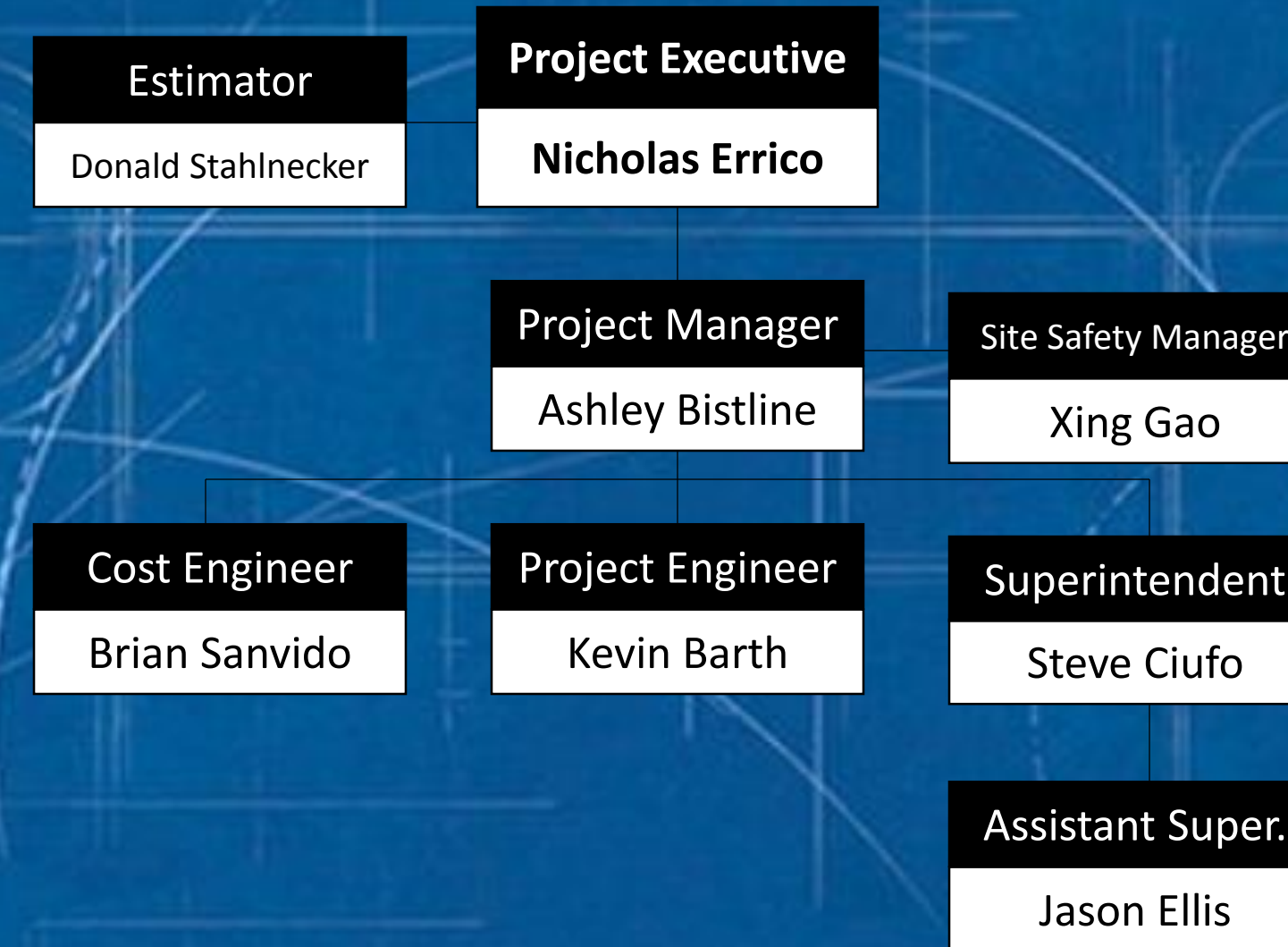
Site Planning

Estimates

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Conclusion

# 2 Cranez Company Organization







## 2 Cranez Construction

Mission

Company Organization

HUB Expansion and Renovation

Schedule

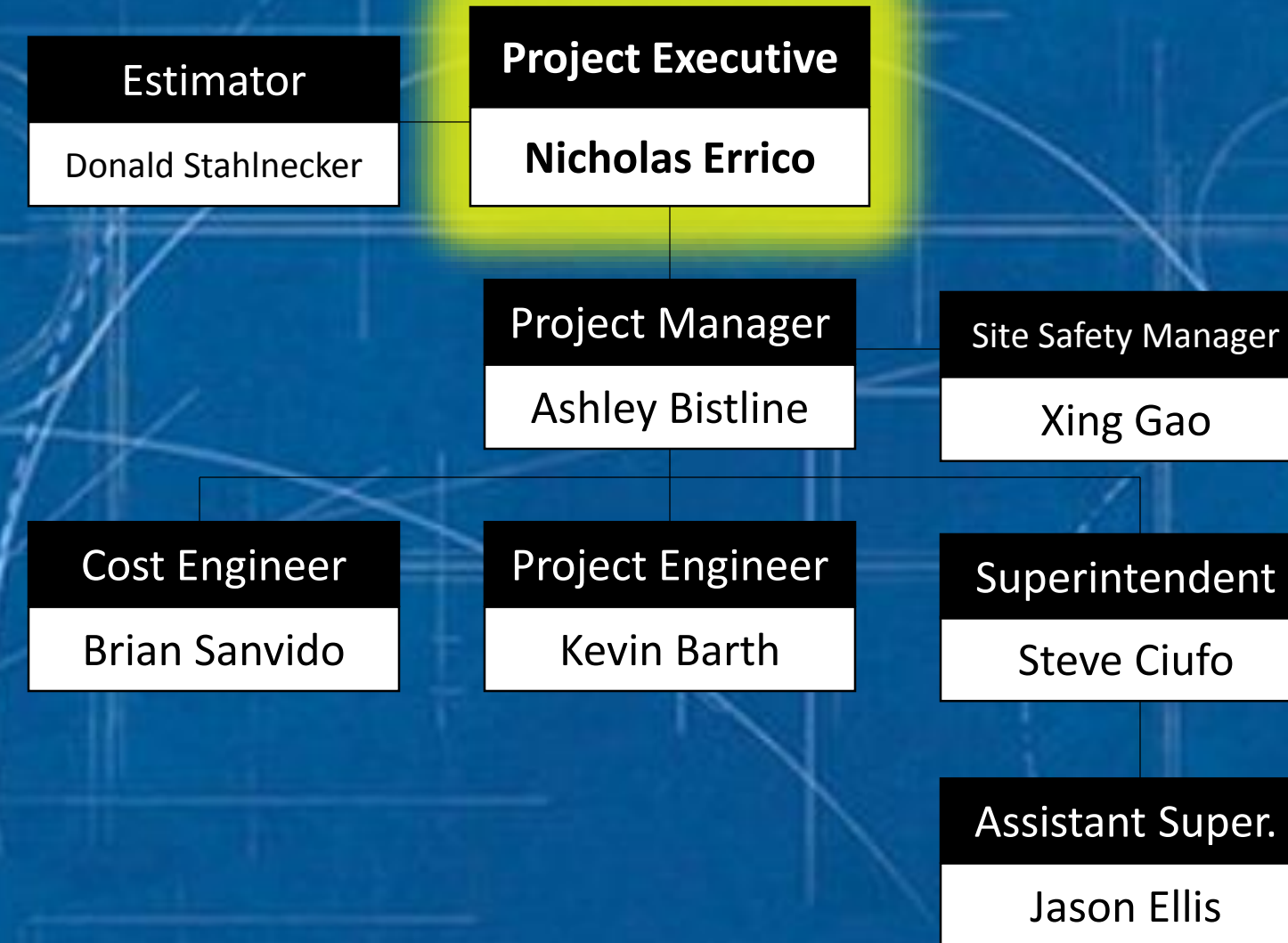
Site Planning

Estimates

Cost Engineering

Conclusion

# Project Executive, Nick Errico



Joined Company: 2002

Positions Held: Project Executive, Project Manager and Engineer

Experience: High-rise

Certification: PE



**2 Cranez Construction**  
Nicholas P. Errico  
Project Executive

**Background**

Nicholas Errico began his career in the construction industry in 2001, after graduating from the Pennsylvania State University with a Bachelors degree in Architectural Engineering. He has experience as a project engineer, project manager, and now as a project executive. Nicholas has experience with commercial high-rise buildings, data centers and educational facilities.

Nicholas started his career with 2 Cranez construction in 2002 as a project manager where he was responsible for a vast array of duties from quality assurance to subcontractor coordination and most importantly safety. In 2004 Nicholas was promoted to Project Executive and took on the responsibility of client relations, subcontractor relations, quality assurance and much more.

Nicholas' experience includes:

**Professional Experience**

**Barj Khalifa**  
Dubai, United Arab Emirates  
Position Held: Project Manager

- Construction of a 3,331,100 SF high-rise building
- Managed construction on floors 50-75
- Duties included RFI's, submittals, subcontractor coordination, quality control

**Pasadena Convention Center**  
Pasadena, California  
Position Held: Project Executive

- Completed in 2009
- 219,00 SF
- \$129 million renovation and expansion
- Duties included client relations, subcontractor coordination
- Client relations have led to contracts for two future projects with the possibility for more to come

**Education**

Pennsylvania State University B.A.E., Architectural Engineering

**Certification**

Professional Engineer







## 2 Cranez Construction

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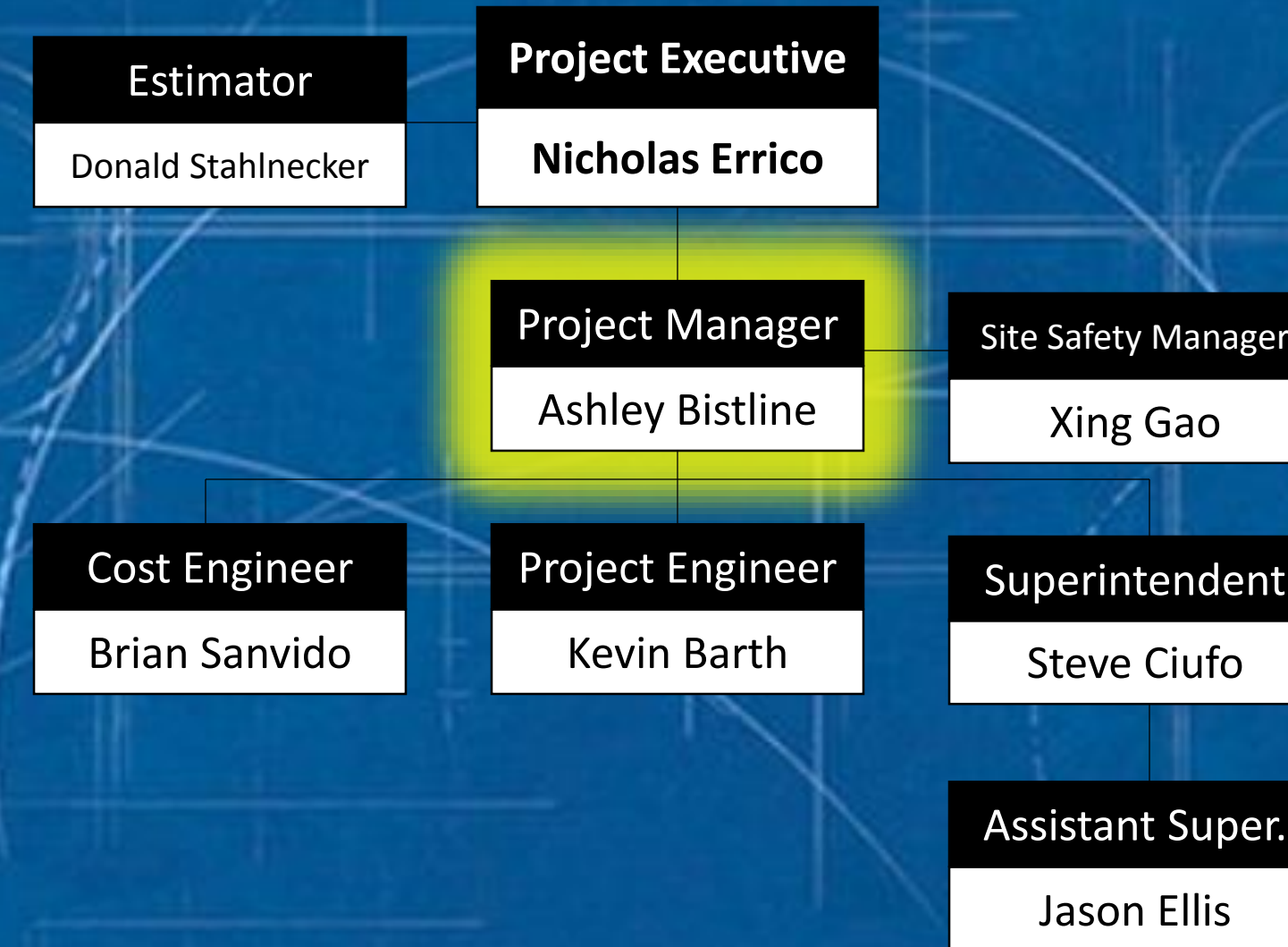
Site Planning

Estimates

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Conclusion

# Project Manager, Ashley Bistline



Joined Company: 2008

Positions Held: Estimator and Project Manager

Experience: Data Centers, Higher Education

Certification: LEED AP



Ashley N. Bistline  
Project Manager

### Background

Ashley Bistline began her career in the construction industry in 2008, after graduating from Penn State with a Bachelors degree in Architectural Engineering. She has experience as an Estimator and a MEP Coordinator. Ashley has experience with data centers and educational facilities, and is well versed in the challenges and protocols associated with these lines of work.

Ashley started her career with 2 Cranez Construction in 2008 as an Estimator where she was responsible for performing take-offs and estimates on projects that 2 Cranez sought out or had already been awarded. She also became very familiar with the coordination throughout the construction process and applied this knowledge to projects when she switched to the title of Project Manager. As Project Manager, her responsibilities included overseeing all of the various trades involved on-site, reviewing and processing RFIs, maintaining the schedule and budget for the project, and managing the 3D Building Information Modeling process to insure coordination of all work.

### Professional Experience

Ashley's experience includes:

- Phlips Conservatory and Botanical Gardens, Center for Sustainable Landscapes**  
University of Maryland, College Park, MD  
Position Held: Project Manager; 2010
  - Completed in 2013
  - 24,000 SF net-zero designed project
  - Earned LEED Platinum
  - Addition of classrooms, offices, research, and administrative facilities
  - Oversaw all MEP related design and construction
- Iron Mountain UPMC Data Center**  
UPMC, Buzen, PA  
Position Held: Estimator; 2008
  - Expansion to a 145 acre renovation of a former limestone mine
  - Includes geothermal cooling systems, as well as unique natural elements such as a large underground lake and limestone walls to aid in cooling the data center
  - Duties included take-offs and estimates for mechanical systems of data based bunkers located 200 feet below ground

### Education

Pennsylvania State University B.A.E., Architectural Engineering

### Certification

LEED AP





## 2 Cranez Construction

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HUB Expansion and Renovation

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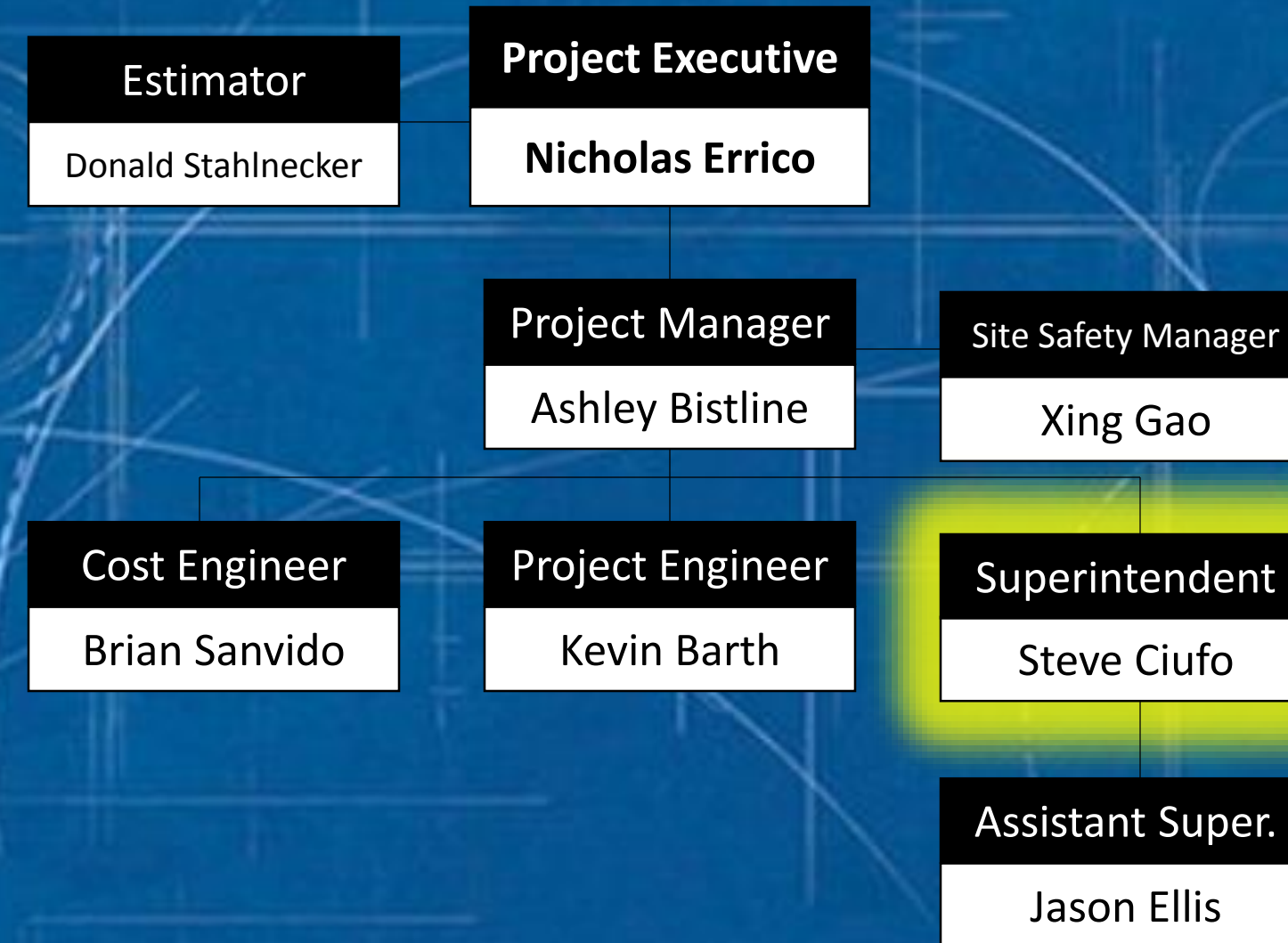
Site Planning

Estimates

Cost Engineering

Conclusion

# Superintendent, Steve Ciufu



Joined Company: 2007

Positions Held: Superintendent

Experience: Union Building Renovation (OSU)

Certification: OSHA,  
CMAA

2 Cranez Construction

Stephen Ciufu

Superintendent

Background



Steve Ciufu graduated from the Pennsylvania State University with a Bachelor's in Architectural Engineering in 2003. He soon obtained a position with Reynolds Construction where he became a superintendent, working on construction projects that included education, government, and office buildings.

In 2007, Steve joined 2 Cranez Construction as a project superintendent. His duties include managing project tasks and information in the field, managing on site work, providing leadership to the project team, and managing project schedules. Steve's experiences, communication skills, focus on quality, and passion for quality make him an indispensable member of the 2 Cranez team.

Professional Experience

Steve's experience includes:

The Ohio Union  
The Ohio State University, Columbus, Ohio  
Position Held: Project Manager; 2007

- Renovation and addition to Ohio State Student Union Building
- 320,000 sq. ft. of new construction and renovations
- \$118 million project
- Managed schedule and project coordination

The Derek Zoellender Center  
New York, NY  
Position Held: Project Manager; 2003

- Completed in 2005
- 109,000 SF educational center
- \$46 million project
- Managed schedule and project coordination

Education

Pennsylvania State University B.A.E., Architectural Engineering

Certification

OSHA, Certified Construction Manager (CMAA)







## 2 Cranez Construction

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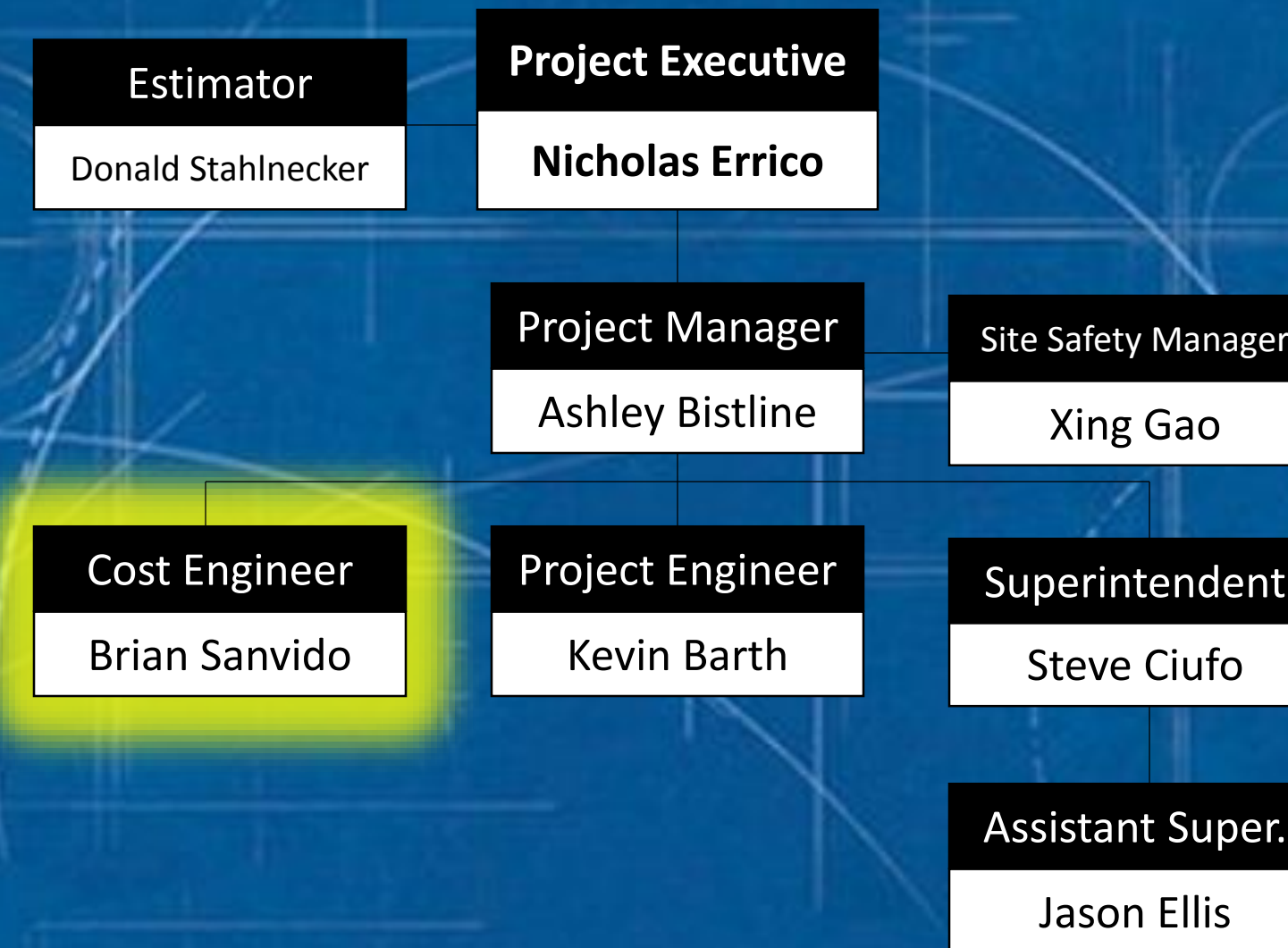
# Cost Engineer, Brian Sanvido

Joined Company: 2011


Positions Held: Cost Engineer

Experience: Labs, Hospitals

Certification: LEED AP



**2 Cranez Construction**  
Brian Sanvido  
Cost Engineer

**Background**  
Brian Sanvido graduated from Penn State in 2005 with a Bachelor's degree in Architectural Engineering. He began working with Southland Industries as a Project Engineer. While working on an Integrated Project Delivery hospital job and a lab building for LACCD, Brian learned the management aspect of the sheet metal, piping, and plumbing trades. He specializes in lean construction methods and Integrated Project Delivery. His latest building was also a school building so Brian has great experience on how to run a jobsite at a school that is still in operation.  
Brian has joined 2 Cranez in 2011, and has since brought innovation to the management of value engineering, costs, and cash flow.

**Professional Experience**  
College Lab Building  
Mission College Lab Building  
Position Held: Cost Engineer, 2010  

- Worked on site as an intern on a 90,000 sq ft, 13.5 million dollar lab building (price just for mechanical and plumbing)
- Assembled internal QA/QC process which is still used on SoCal jobsites
- Helped with 2 LEED Platinum buildings including LACCD Pierce Community College (first potential net zero campus in United States)

Hospital Building  
Tenneco Hospital  
Position Held: Project Engineer, 2007  

- Worked on site as an intern on a 180,000 sq ft, 150 million dollar IPD Hospital in Temecula (Price is for entire team)
- Took on meetings by myself and represented Southland
- Have a firm grasp on IPD as a contract and how it changes the culture of a job
- Fast to construct and lowest cost of Hospital of this size in California

**Education**  
Pennsylvania State University B.A.E., Architectural Engineering

**Certification**  
LEED AP





## 2 Cranez Construction

Mission

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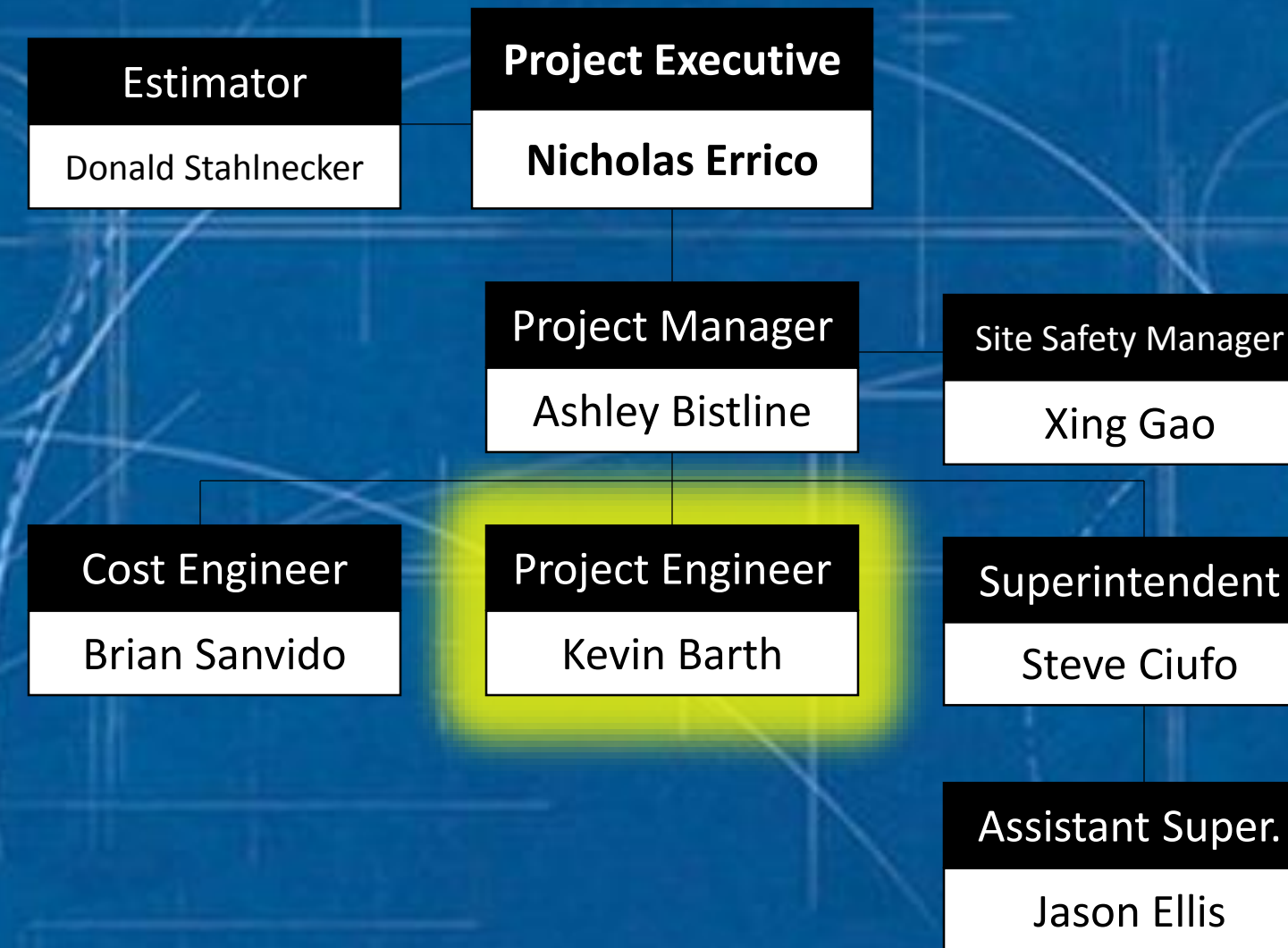
# Project Engineer, Kevin Barth

Joined Company: 2002

Positions Held: Project Engineer

Experience: Renovation of Union Building

Certification: PE



2 Cranez Construction

Kevin Barth PE, PMP

Project Engineer

**Background**



Kevin Barth has worked with 2 Cranez Construction since he graduated from Penn State with his Masters in Architectural Engineering in 2002. Kevin has vast experience in field work, and contributes to value engineering with every project he is involved in. He holds himself and the people he works with the high standards, insuring a quality product and a satisfied owner.

Kevin has experience in various facets of the construction industry, including residential high rises, commercial construction, and historic renovations. The majority of his experience is with university construction. Kevin's past duties on 2 Cranez Construction projects include estimations, value engineering, site supervisions, and material tracking. He is a vital member to the 2 Cranez team.

**Professional Experience**

Kevin's experience includes:

**The Ohio Union**  
The Ohio State University, Columbus, Ohio  
Position Held: Project Engineer, 2007

- Renovation of a student activities building for The Ohio State University
- \$118 Million project including asbestos removal and numerous updates to aging equipment
- Duties included material management, site layout, quality control

**Cab Calloway School of the Arts**  
Red Clay Consolidated School District, Wilmington, Delaware  
Position Held: Project Engineer, 2012

- Renovation to existing, outdated theater
- Installed new structural supports as well as refit the area with new mechanical equipment
- Project was completed without interrupting the academic life of the students
- Managed daily activities, quality control, material and equipment tracking

**Education**

The Pennsylvania State University M.A.E., Architectural Engineering

**Certification**

Professional Engineer, Project Management Professional





## 2 Cranez Construction

Mission

Company Organization

HUB Expansion and Renovation

Schedule

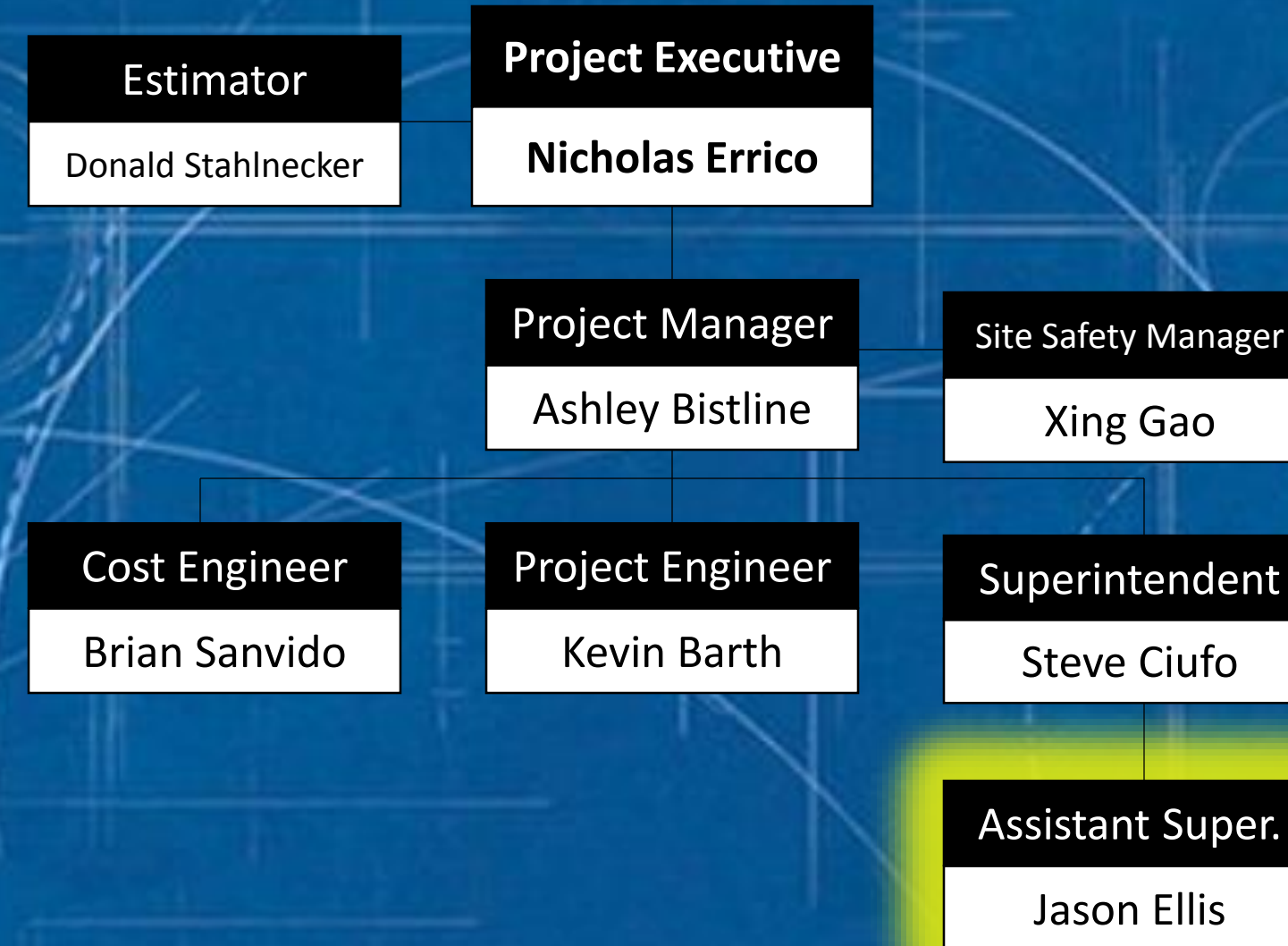
Site Planning

Estimates

Cost Engineering

Conclusion

# Asst. Superintendent, Jason Ellis

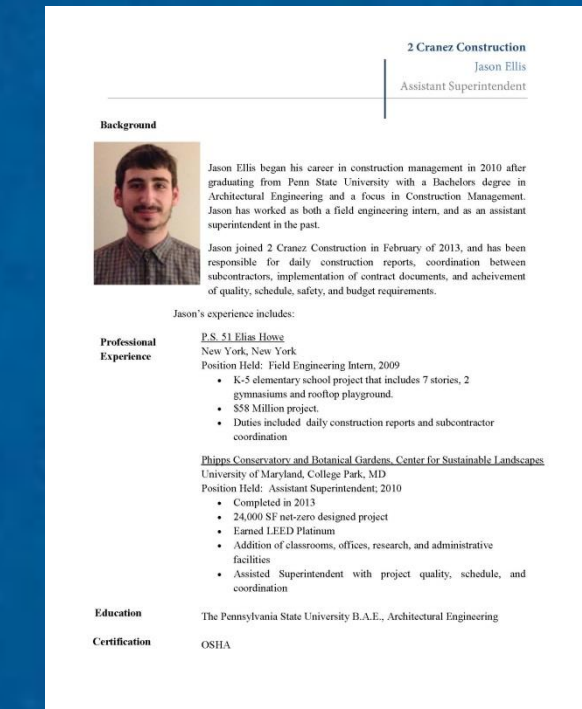


Joined Company: 2013

Positions Held: Asst Superintendent

Experience: Education & Research  
facilities

Certification: OSHA







## 2 Cranez Construction

Mission

Company Organization

HUB Expansion and Renovation

Schedule

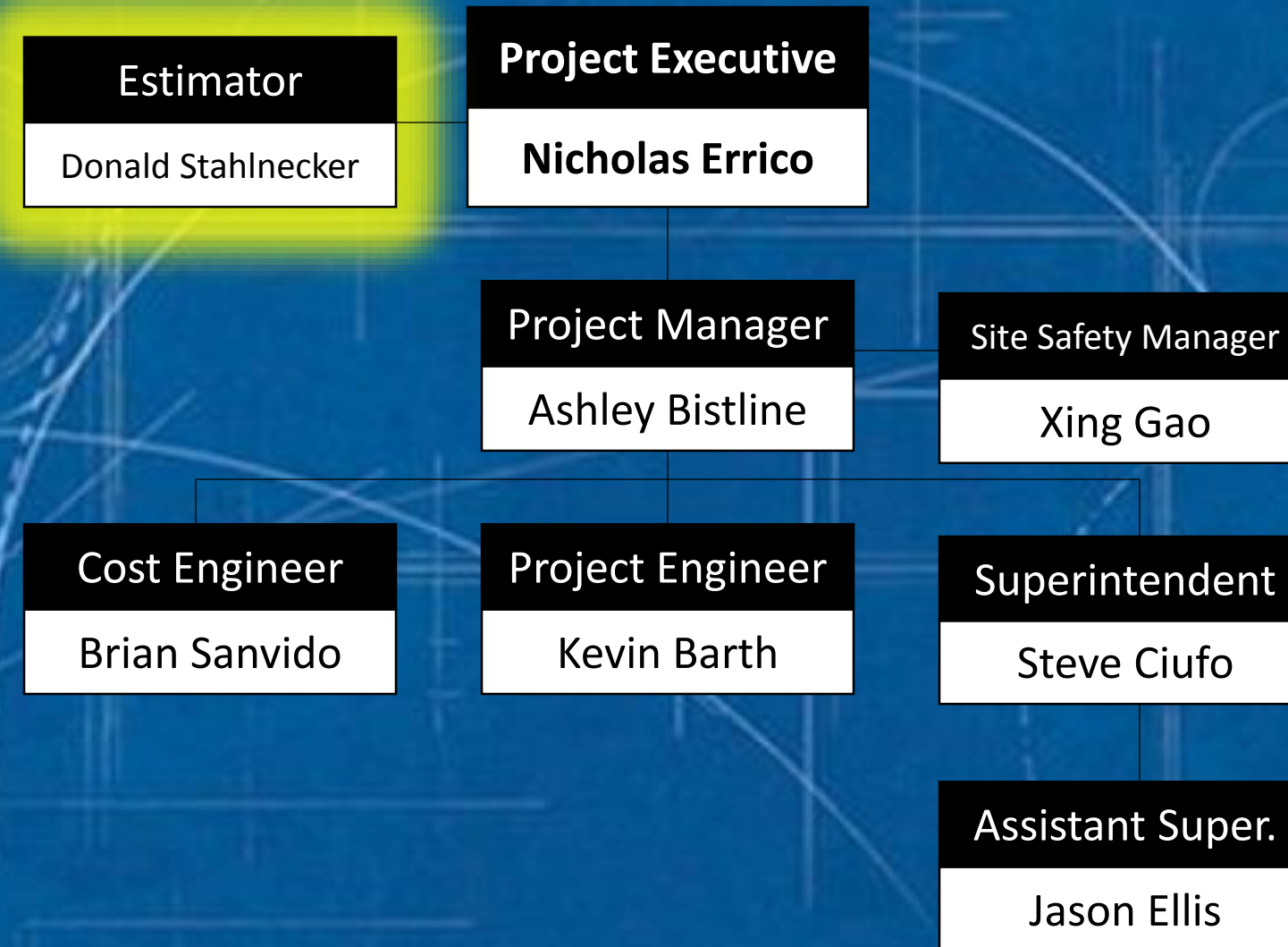
Site Planning

Estimates

Cost Engineering

Conclusion

# Estimator, Don Stahlnecker



Joined Company: 2008

Positions Held: Senior Estimator, Project Manager

Experience: Education, Sports Venue

Certification: PE

2 Cranez Construction

Donald S. Stahlnecker PE

Senior Estimator

Background



Donald Stahlnecker began his career in the construction industry in 2005, after graduating from The Pennsylvania State University with a Bachelor's degree in Architectural Engineering. He has experience as a project manager and in the estimating department. Donald has experience with sports venues and educational facilities.

Donald started his career with 2 Cranez construction in 2008 as a project manager where he was responsible for coordination among trades, maintaining the schedule, and managing the budget for the project. In 2010 Donald relocated to the estimating department, where he became the Senior Estimator in 2012. His responsibilities include finding jobs for 2 Cranez to bid, establishing relationships with subcontractors during preconstruction, and staying current with economy trends in the industry.

Professional Experience

Donald's experience includes:

**Nordenberg Hall**  
Pittsburgh, Pennsylvania  
Position Held: Senior Estimator

- Completed 2013
- Construction of a 10 story dorm at University of Pittsburgh
- Duties included estimating the project and monitor economy and project costs

**Consolid Energy Center**  
Pittsburgh, Pennsylvania  
Position Held: Project Manager

- Completed in 2010
- \$321 Million
- Duties included subcontractor coordination and schedule and cost management
- Client relations have led to contracts for two future projects with the possibility for more to come

Education

Pennsylvania State University B.A.E., Architectural Engineering

Certification

Professional Engineer





## 2 Cranez Construction

Mission

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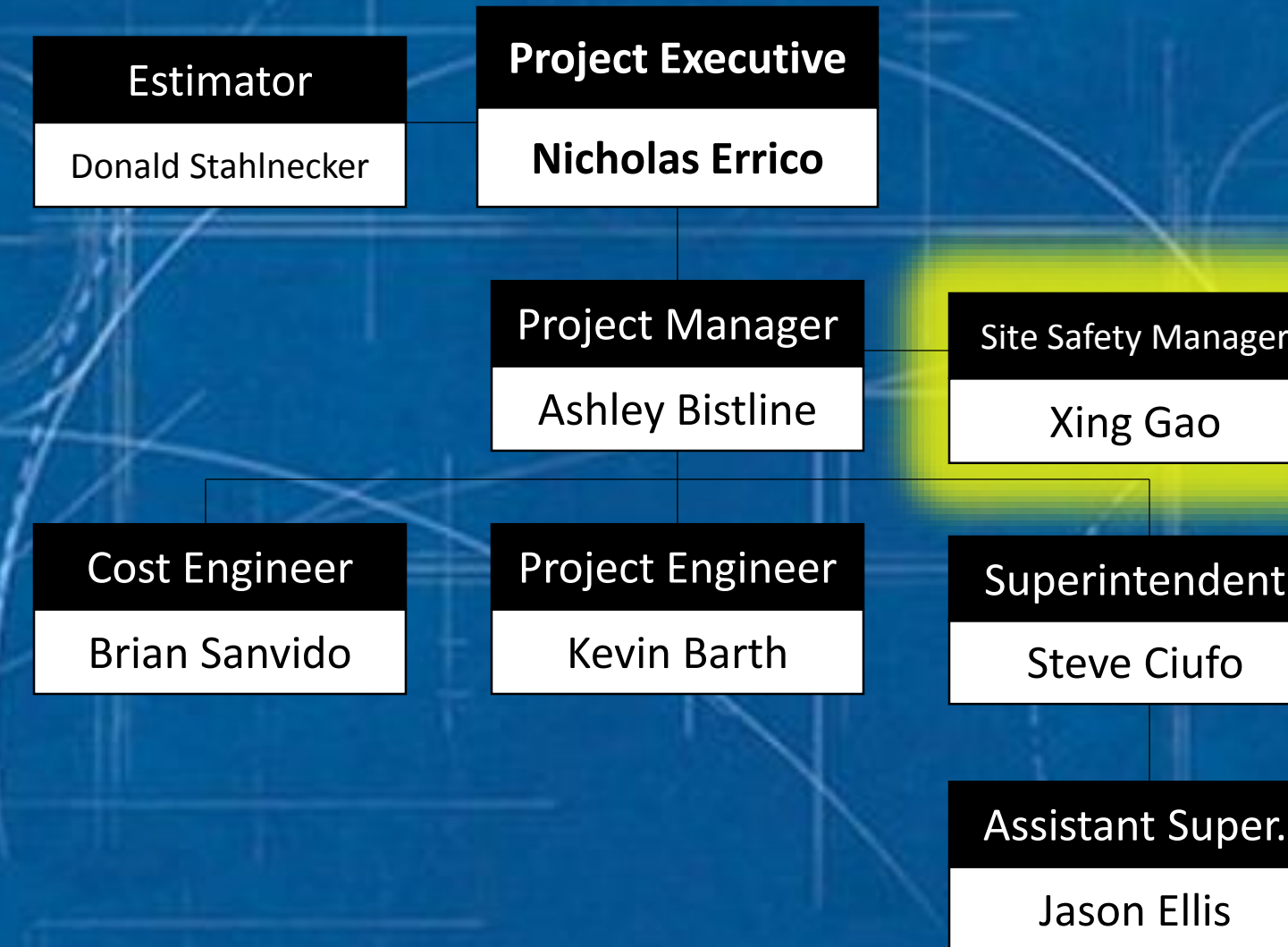
Site Planning

Estimates

Cost Engineering

Conclusion

# Safety Coordinator, Xing Gao




Joined Company: 2007

Positions Held: Safety Coordinator,  
Project Manager

Experience: Hospital, Government

Certification: OSHA 30

Two Cranez Xing Gao Safety Coordinator	
	<p><b>Background</b></p> <p>Xing Gao began his career in the construction industry in 2007. He has experience in all phases of construction and coordination. He came out of The Pennsylvania State University with a Bachelor's degree in Architectural Engineering which focused on his Construction Management Option. Experience consists of working as a Project Manager and Safety Coordinator. He has excelled with the construction of numerous public bank facilities as well as specializing in hospital additions &amp; renovations, in addition to his experience with education buildings.</p> <p>Beginning his career as an assistant project manager for 2 Cranez in 2007, Xing handled all submittal logs and scheduling issues for a multimillion dollar Citibank in Manhattan. With end to end project knowledge, Xing quickly gained useful experience and made the switch to safety coordinator for a Chase Bank renovation that 2 Cranez had already been awarded. Having recently completed the job under budget and with no recordable injuries, Xing is quickly building up his reputation in the construction industry.</p>
<b>Professional Experience</b>	<p>Xing's experience includes:</p> <p><b>Chase Bank Renovation</b> Manhattan, NY Position Held: Safety Coordinator, 2010</p> <ul style="list-style-type: none"><li>18,000 SF demolition and Renovation while keeping the bank in full operation</li><li>Included data coordination and the installation of 6 new ATMs</li><li>Oversee all operation and organized end to end project schedule</li></ul> <p><b>Good Samaritan Hospital</b> Sullivan, NY Position Held: Project Manager, 2007</p> <ul style="list-style-type: none"><li>24,000 SF addition to existing facility</li><li>Renovation of existing Emergency Department, featuring</li><li>Access to ambulatory drop off was improved</li><li>Critical underground services improved to ensure stability and growth for the hospital in the future</li><li>Team overcame challenge to complete construction while keeping every department undisturbed</li></ul>
<b>Education</b>	Pennsylvania State University B.A.E., Architectural Engineering
<b>Certifications</b>	OSHA 30





# Master Plan

## 2 Cranez Construction HUB Expansion and Renovation

Master Plan

Project Overview

Sequence

Schedule

Site Planning

Estimates

Cost Engineering

Conclusion

- ❑ Motives for expansion: outdated, capacity issues, enhancing accessibility, sustainability
- ❑ Sustainability features: green roof (natural drain & insulation), large surrounding green space (encouraging biking & walking)
- ❑ Increased seating/eating/gathering space by 220+ seats
- ❑ Fits Penn State's push toward modern architecture

- ❑ Funded by student facility fees, HUB reserves, Bookstore reserves & Food Service Funds





## 2 Cranez Construction HUB Expansion and Renovation

## Project Overview

# Schedule

## Site Planning

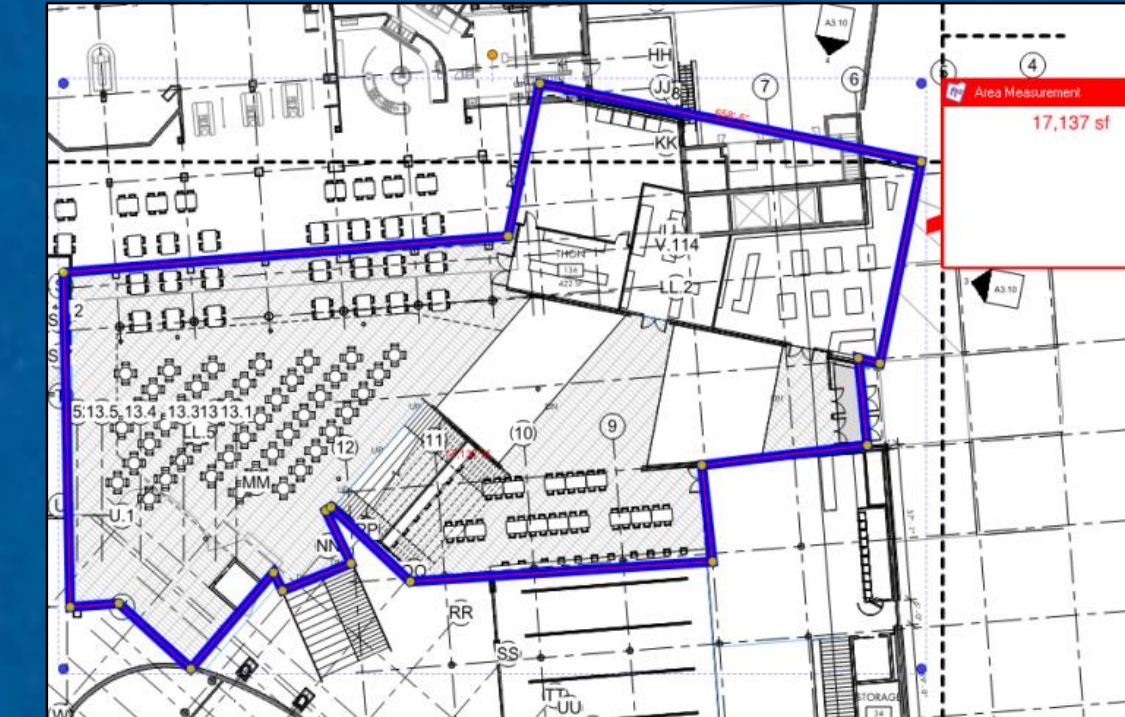
# Estimates

# Cost Engineering

## Conclusion

- ❑ **Design-Assist**
- ❑ **Expansion: 37,000SF, Renovation 35,000 SF**
- ❑ **Bookstore, retail, food, seating, study, offices, labs, etc**
- ❑ **Green Roof/Mezzanine**
- ❑ **Expanding upon existing systems**

- ❑ **Four Floors**
- ❑ **17,000 SF excavation**





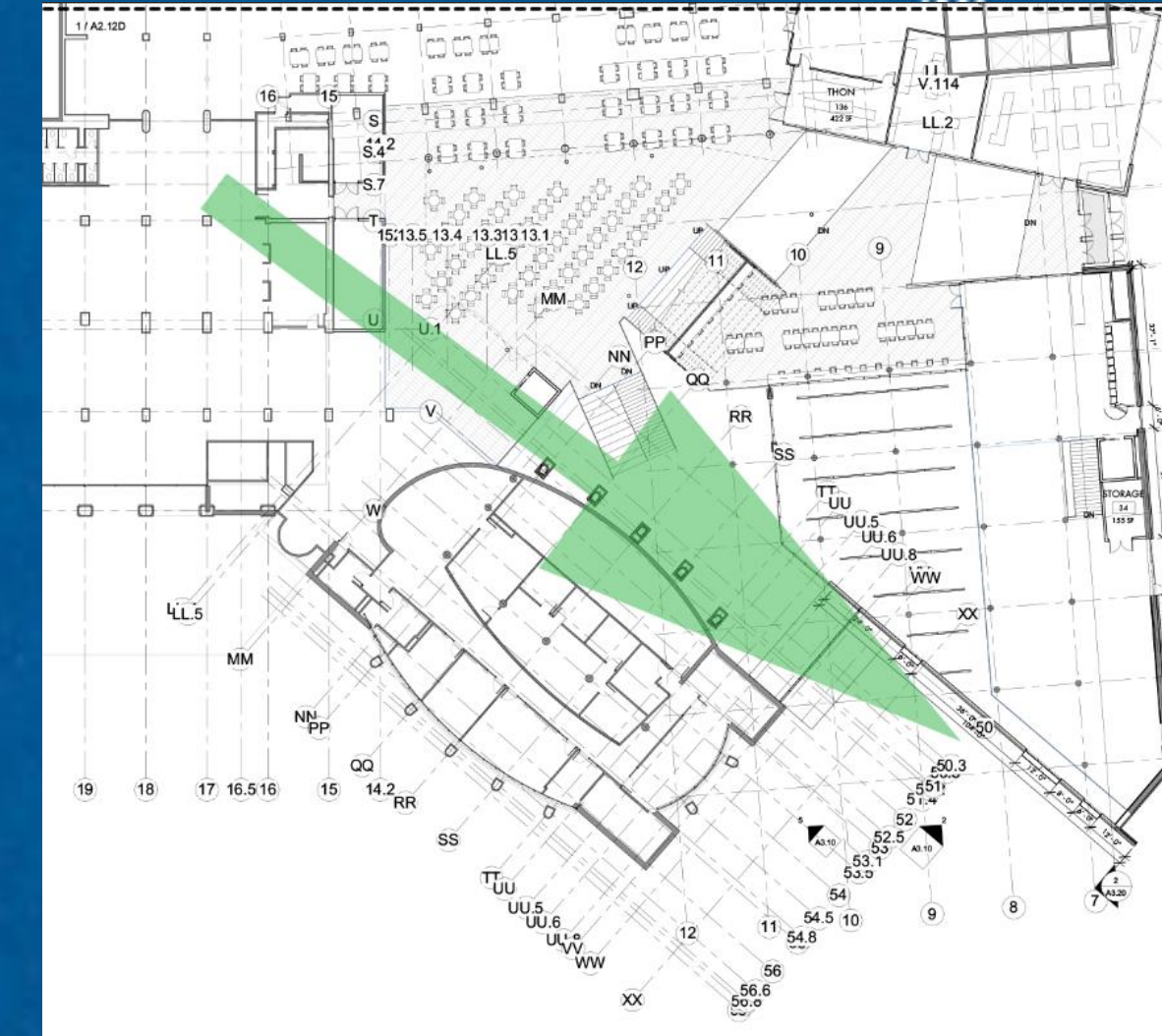
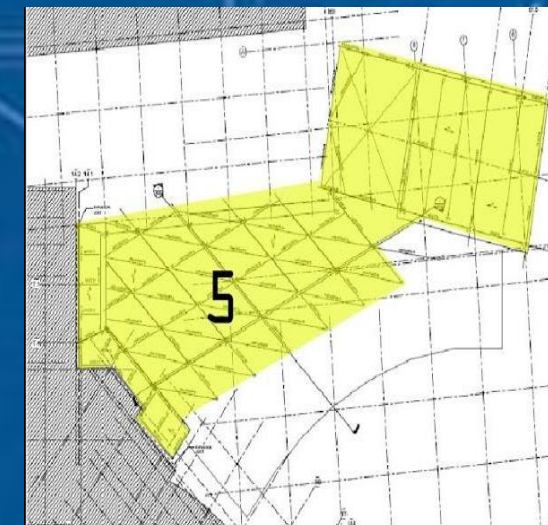
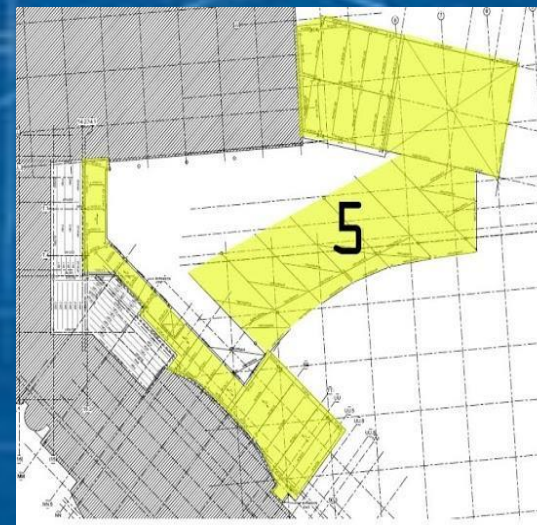
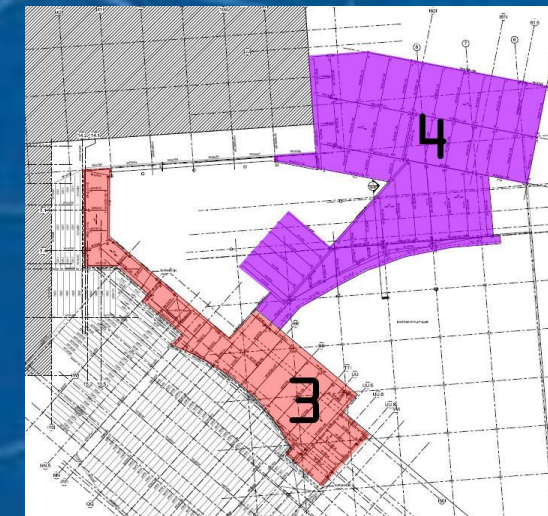
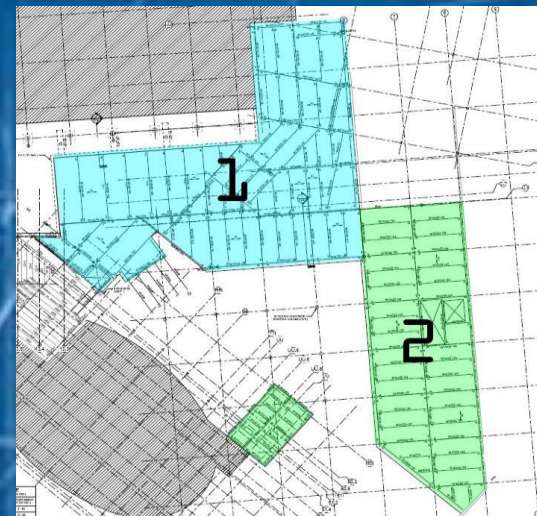
# Sequence

## 2 Cranes Construction HUB Expansion and Renovation

Master Plan  
Project Overview  
Sequence

Schedule  
Site Planning  
Estimates  
Cost Engineering  
Conclusion

S  
T  
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E





# Schedule Risks

## 2 Cranez Construction HUB Expansion and Renovation Schedule

**Schedule Risks**  
Project Schedule

Site Planning  
Estimates  
Cost Engineering  
Conclusion

- ☐ Miscommunication
- ☐ Weather and Elements
- ☐ Acquisition of Permits
- ☐ Material Orders and Deliveries
- ☐ Specialty/Foreign Materials
- ☐ Change Orders



- ☐ Communal Trailer
- ☐ Contingency
- ☐ Plan Accordingly
- ☐ Schedule and Bonds
- ☐ Local Resources
- ☐ Preventative Measures

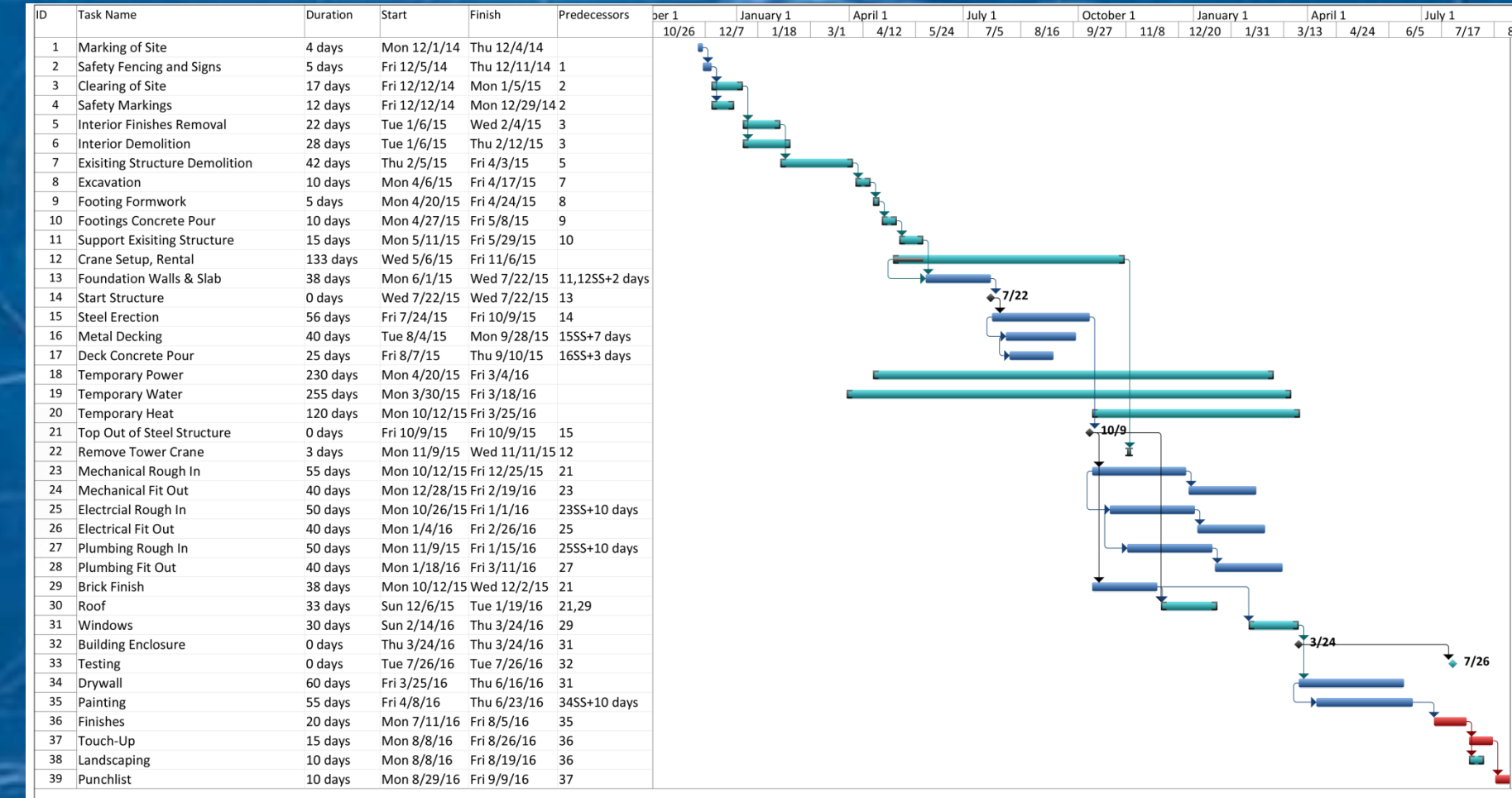


# Project Schedule

## 2 Cranez Construction HUB Expansion and Renovation Schedule

Schedule Risks  
Project Schedule

Site Planning  
Estimates  
Cost Engineering  
Conclusion



## Project Dates and Milestones

Project Start: Dec. 1, 2014

Demolition: Jan. 6, 2015 to April 3, 2015

Tower Crane Arrival: May 6, 2015

Start Structure: July 22, 2015

Top out of Steel: October 9, 2015

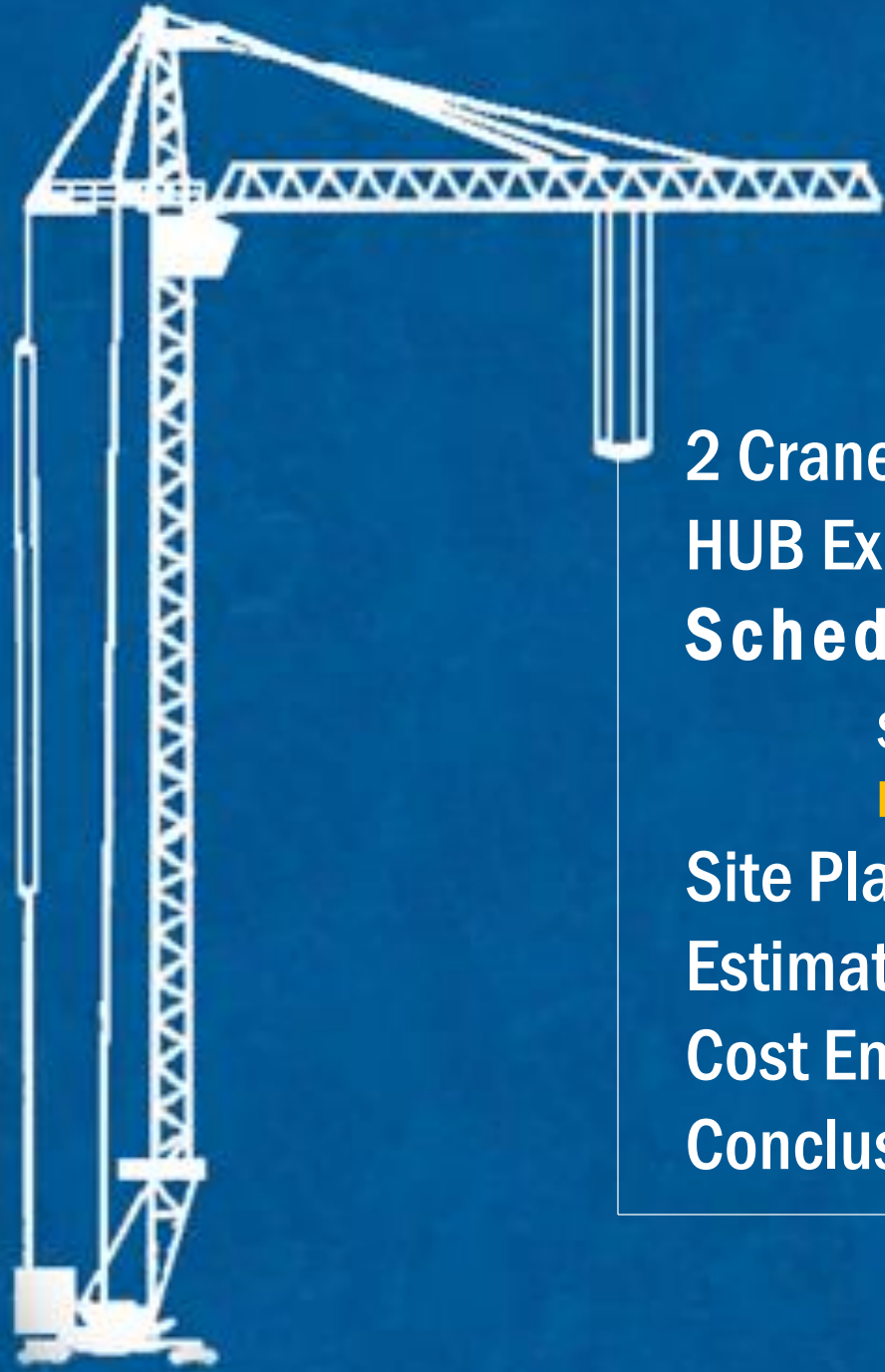
Remove Tower Crane: Nov. 9, 2015

Building Enclosure: March 24, 2016

Project End: Sept. 9, 2016

Total Duration: 21 months, 9 days



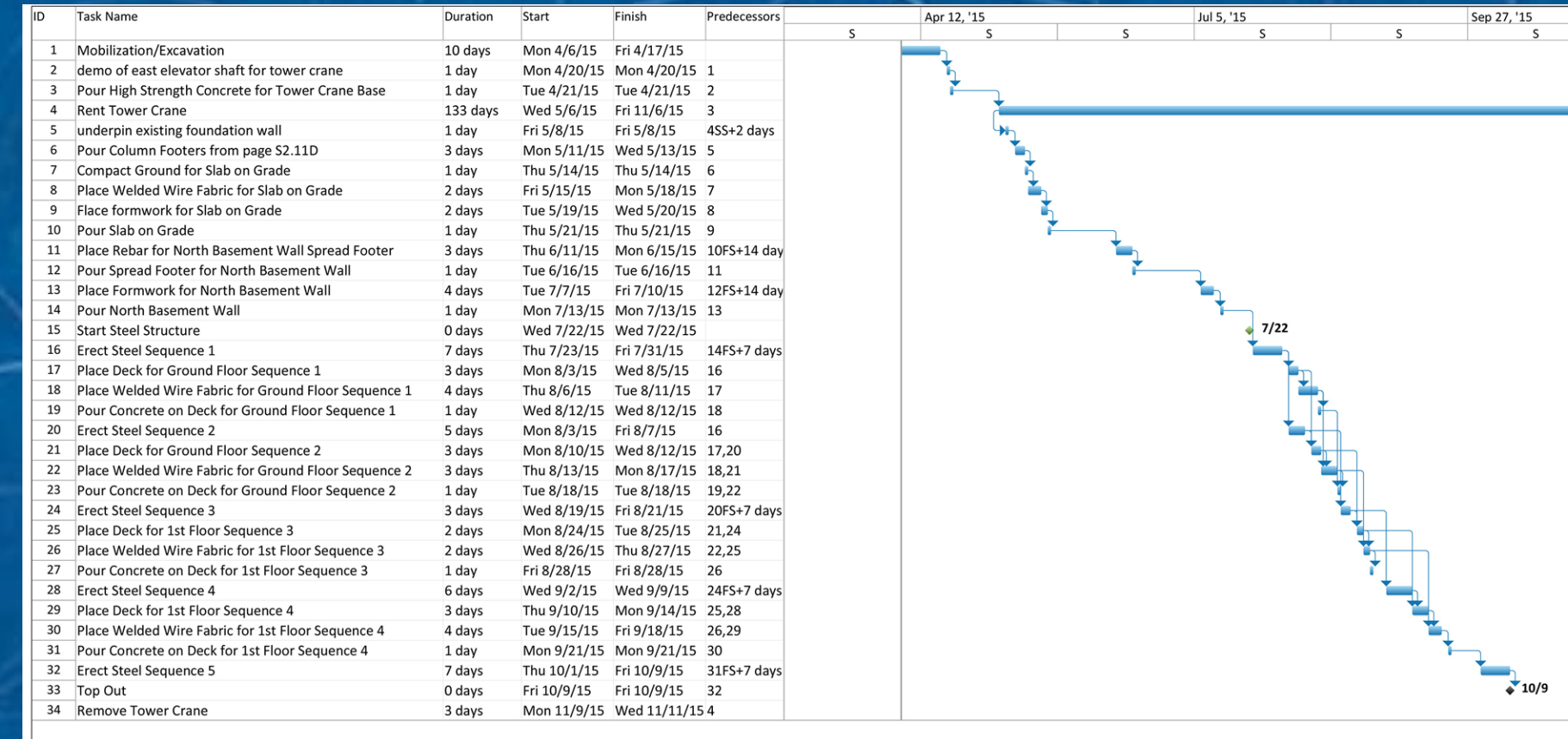


## 2 Cranez Construction HUB Expansion and Renovation Schedule

Schedule Risks  
Project Schedule

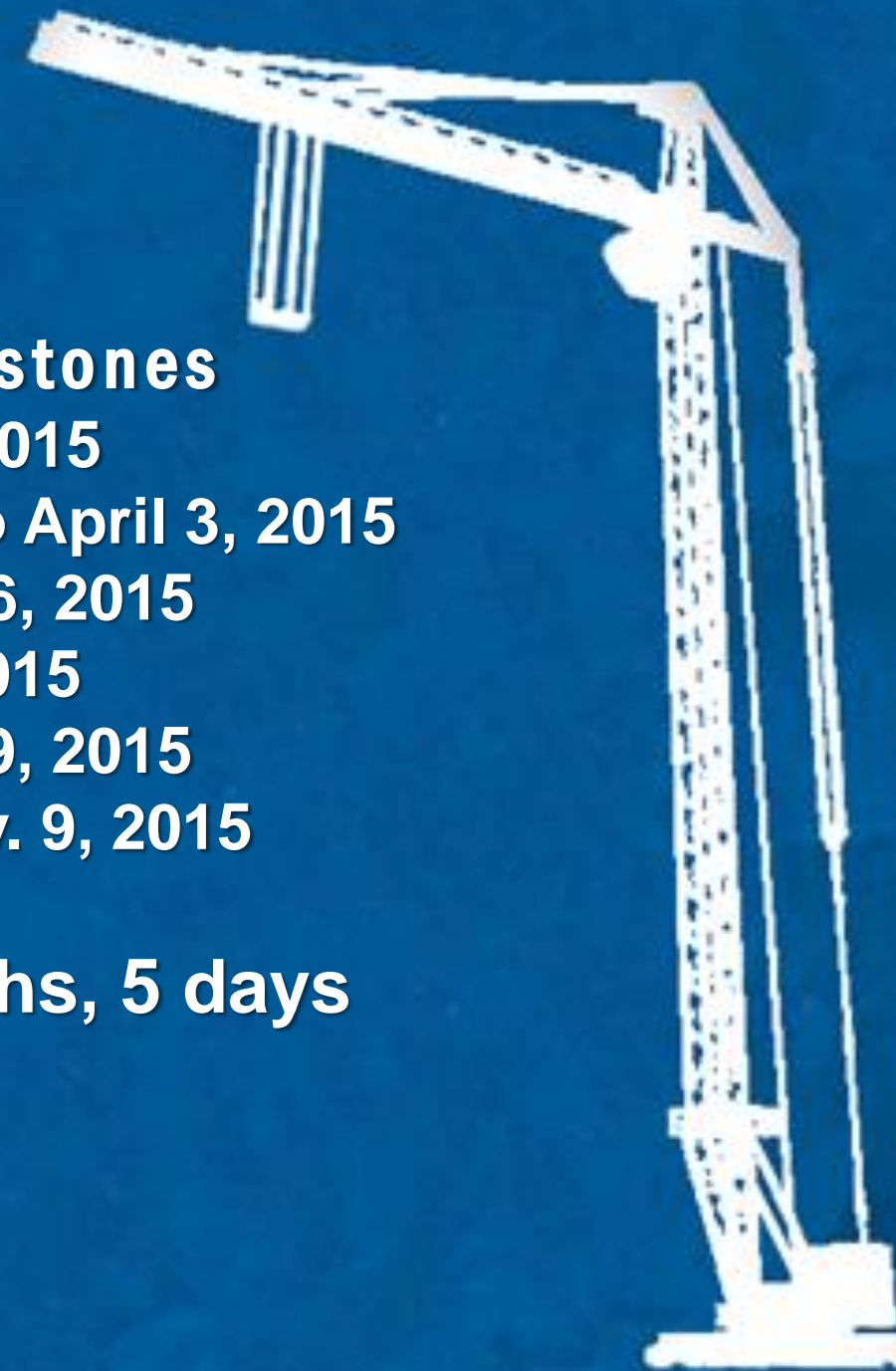
Site Planning  
Estimates  
Cost Engineering  
Conclusion

# Superstructure Schedule



**Project Dates and Milestones**  
**Structure Start: April 6<sup>th</sup>, 2015**  
**Demolition: Jan. 6, 2015 to April 3, 2015**  
**Tower Crane Arrival: May 6, 2015**  
**Start Structure: July 22, 2015**  
**Top out of Steel: October 9, 2015**  
**Remove Tower Crane: Nov. 9, 2015**

**Total Duration: 7 months, 5 days**





# Site Logistics

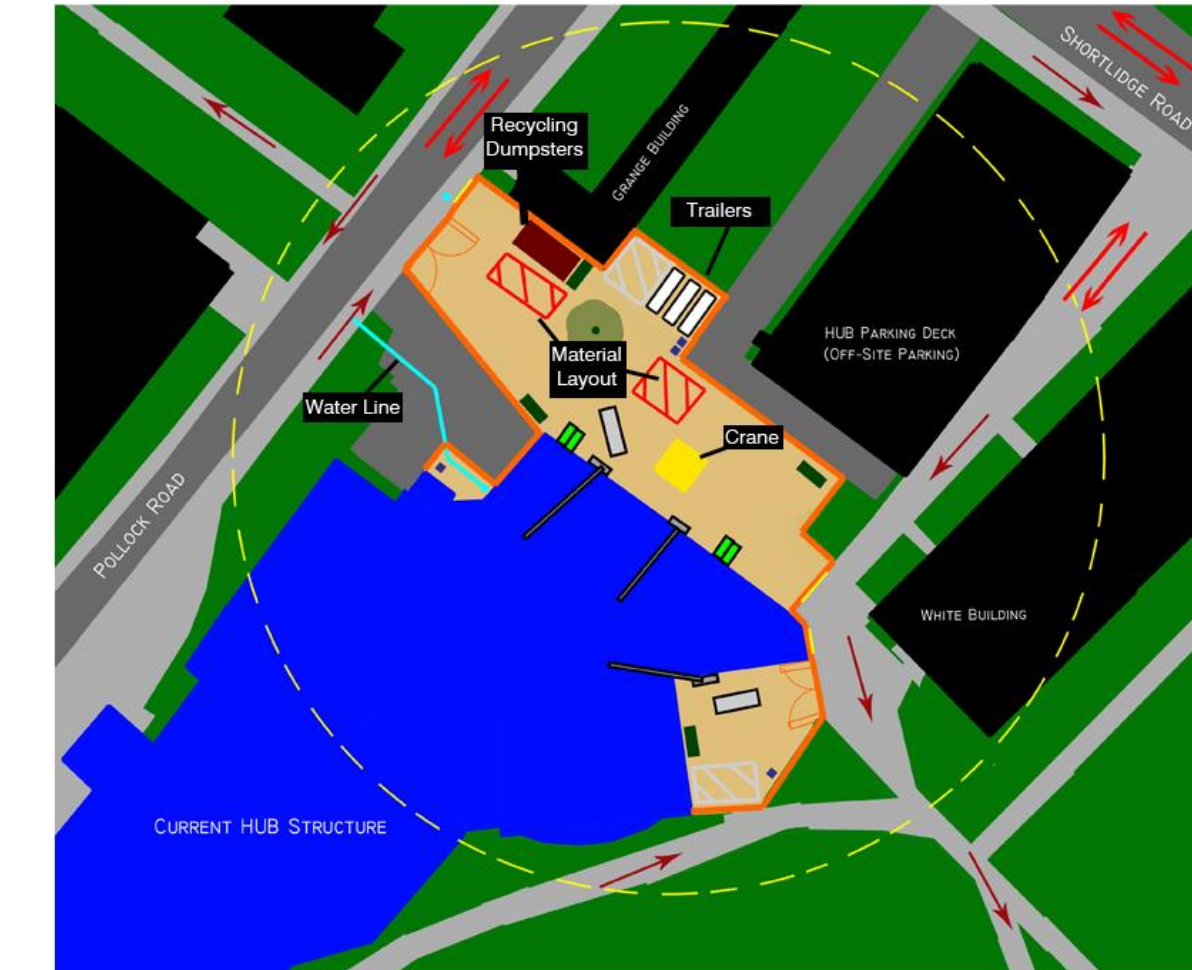
2 Cranez Construction  
HUB Expansion and Renovation  
Schedule  
Site Planning

Site Logistics  
Waste Removal/LEED  
Safety Plan

Estimates  
Cost Engineering  
Conclusion



HUB Site Logisitcs Plan  
Phase 1- Demolition



HUB Site Logisitcs Plan  
Phase 2 - Foundation/Concrete



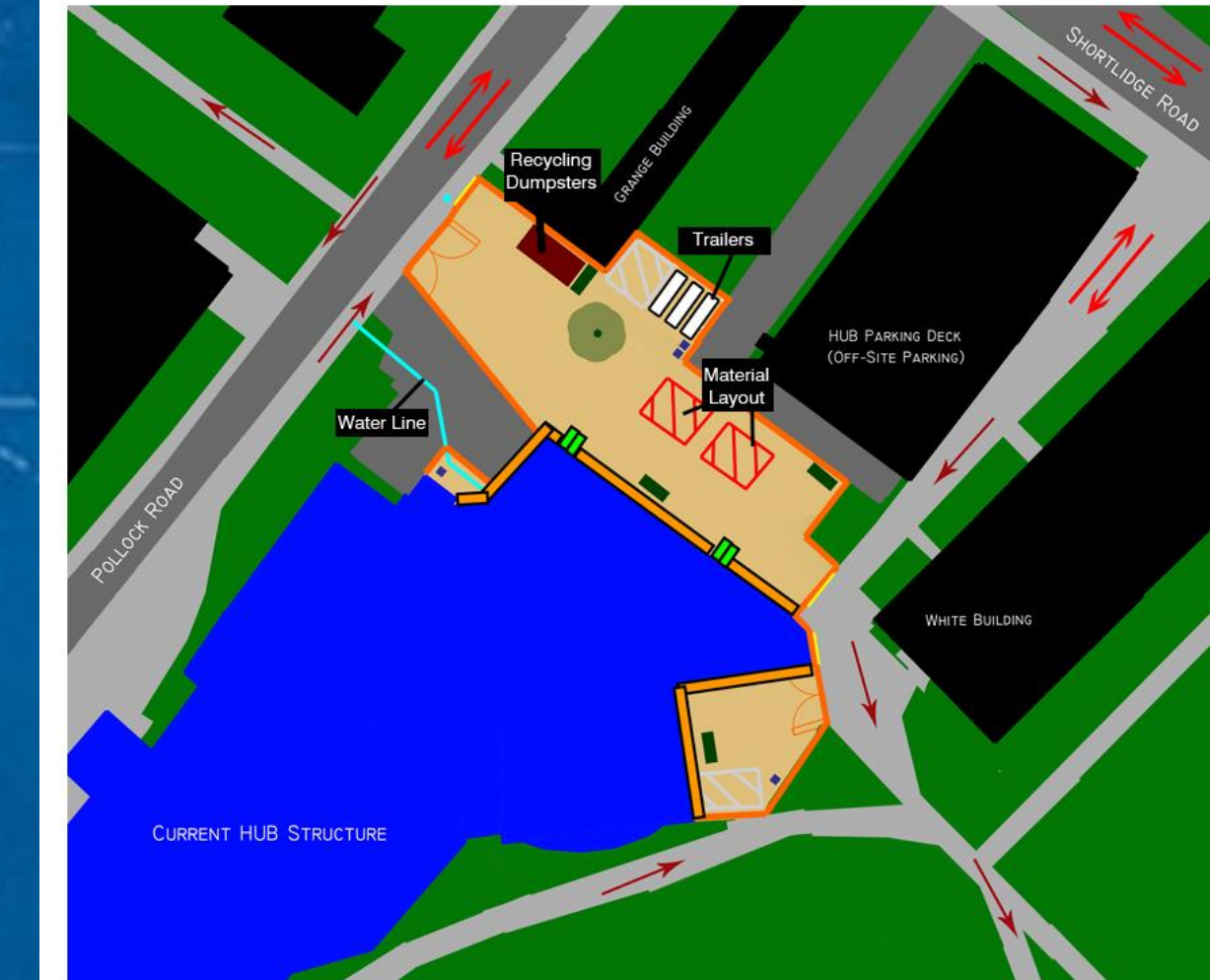
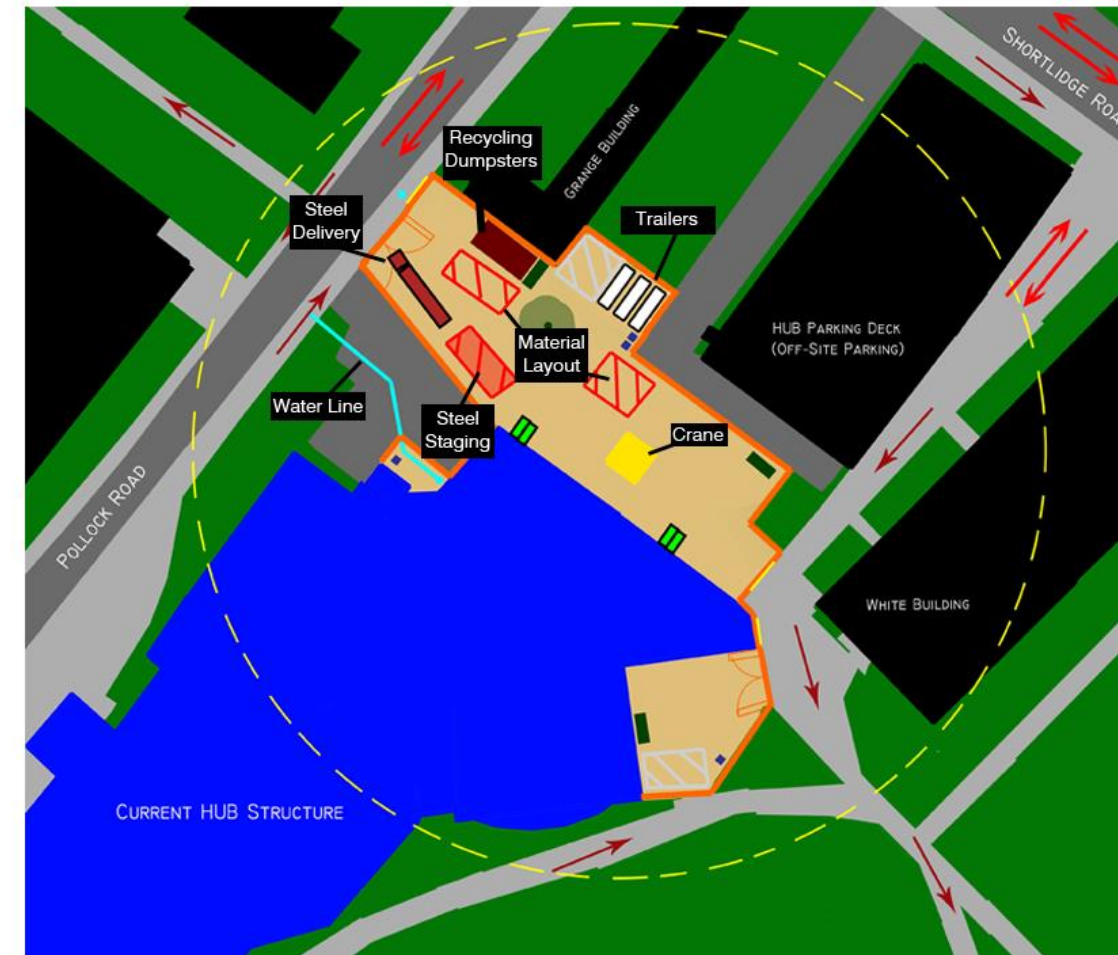


# Site Logistics

2 Cranez Construction  
HUB Expansion and Renovation  
Schedule  
Site Planning

Site Logistics  
Waste Removal/LEED  
Safety Plan

Estimates  
Cost Engineering  
Conclusion





# Waste Removal/LEED

2 Cranez Construction  
HUB Expansion and Renovation  
Schedule

## Site Planning

Site Logistics  
Waste Removal/LEED  
Safety Plan

Estimates  
Cost Engineering  
Conclusion

### ☐ Recycling

☐ Demolition- tower, mechanical, roof, mezzanine, interiors

☐ Cardboard, wood, plastic, gypsum, aggregate, metals,  
paper

### ☐ LEED

☐ 50% materials → 25% from construction and demolition

☐ Limits Hauling

### Goals:

☐ 50-60% reduction

☐ Bulk Purchases

☐ Contribute to University Initiatives:

☐ Habitat for Humanity

☐ Diversion/Reuse → Receptacles

☐ \$525 vs \$150 per haul



# Safety Plan

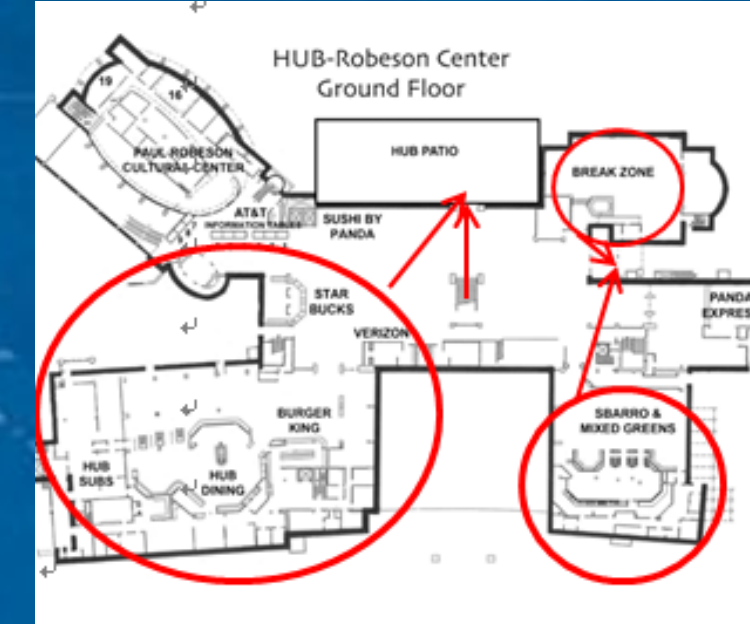
2 Cranez Construction  
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Waste Removal/LEED  
Safety Plan

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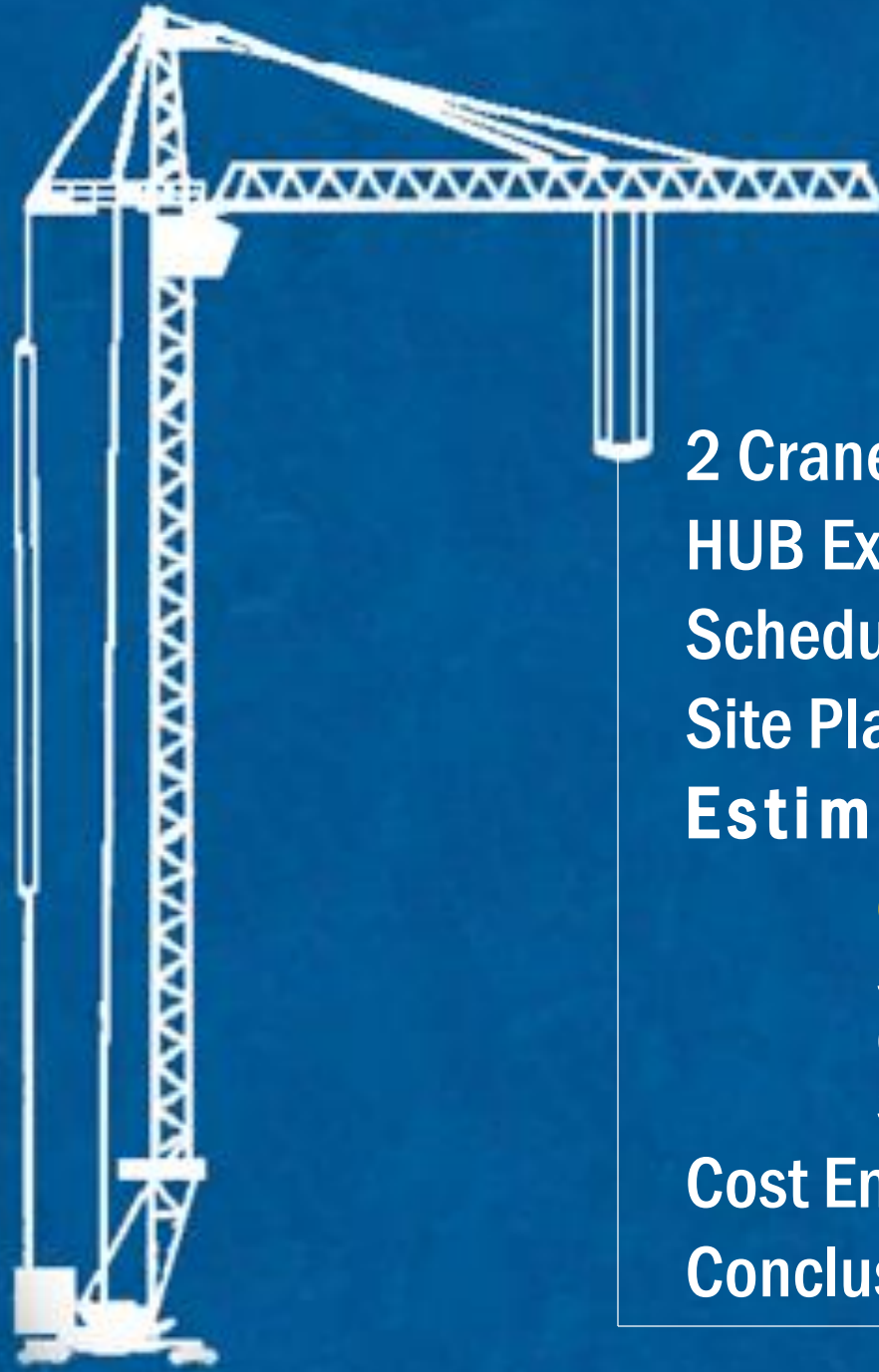
- Fencing around site
- Signage for directions and caution
- Scheduled deliveries during specific hours
- Daily Safety Meetings

**THINK**  
OUR AIM, NO  
ACCIDENTS



Safety saves **LIVES**,  
time, and money.





2 Cranez Construction  
HUB Expansion and Renovation  
Schedule  
Site Planning  
Estimates

General Conditions  
Steel  
Concrete  
Square Foot

Cost Engineering  
Conclusion

# General Conditions Estimate

- ☐ Staff Salary
- ☐ Travel Expenses
- ☐ Engineering Costs
- ☐ Office Costs (Trailer, Office Supplies, etc.)
- ☐ Temporary Utilities
- ☐ Winter Protection
- ☐ Signs and Barricades
- ☐ Logistics
- ☐ Project Documentation
- ☐ Clean Up
- ☐ Safety
- ☐ Punch Lists
- ☐ Permits, Taxes, Bonds, and Insurance

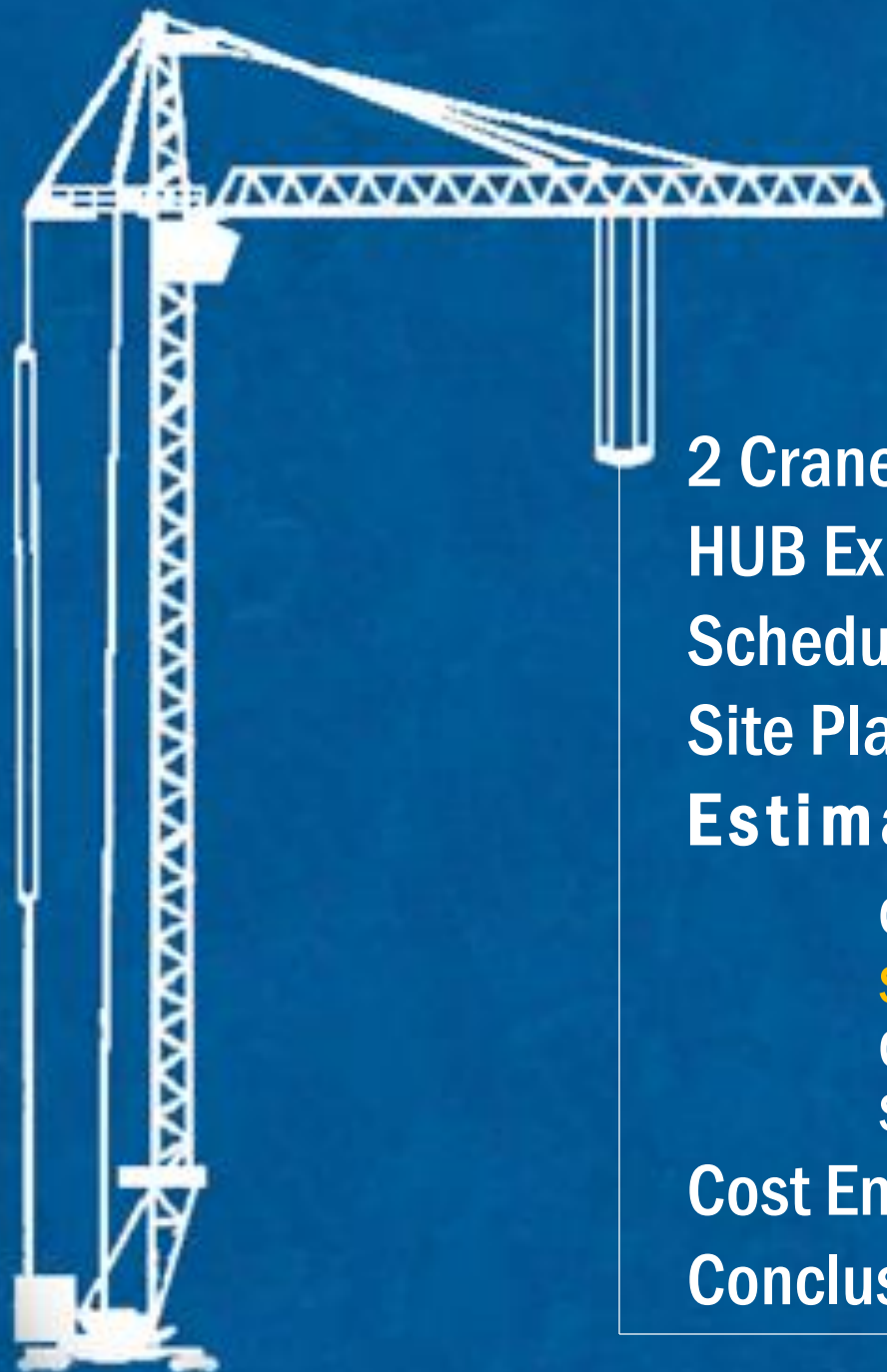
-	10	\$3,600.00	-
-	80	\$1,600.00	-
-	35	\$875.00	-
0	0.02	\$420,000.00	-
0	0.06	\$840,000.00	01 21
0	0.02	\$420,000.00	-
Total:		\$2,911,391.68	

Section	Conditions
Job Organization:	Superintendent
	Assistant Superintendent
	Project Manager
	General Foreman
	Site Safety Coordinator
	Project Engineer
	MEP Coordinator
Travel Expense:	Project Executive
	Auto Allowances
	Superintendent
Engineering:	Project Manager
	Drawings
	Misc Connection Cords
	Samsung Galaxy Tablet
	Verizon Business Plan
Equipment:	Software
	Crane
	Concrete Pump, Conveyor, Etc.
	Survey/Layout
	Forklift
	Freight & Hauling
	Scaffolding
Field Offices:	Small Power Equipment/Tools
	Job Office
	Temporary Telephones
	Utilities
Temporary Utilities:	Temporary Toilets
	Heat
	Power
Winter Protection:	Water
	Snow Plowing
Signs & Barricades:	Framing to Close Openings
	Site Sign
	Temporary Fences
Logistics:	Temporary Stairs, Ladders & Floors
	Parking Permits
Photographs:	Protection of Existing Work/Dust Control
	Imaging
	Dumpster

Section	Conditions
Clean Up:	Dumpster
Punch List:	Final Clean Up
Permits:	Software
Insurance:	Building
Safety	Builders Risk
	First Aid Kit & Refills
	Fire Extinguishers
	Safety Signage
	Safety Training
Taxes:	PPE (for staff and visitors)
	Drug Testing/Clearances
	City Sales
Bonds:	State Sales
	Performance, Material, & Equipment







## 2 Cranez Construction HUB Expansion and Renovation Schedule Site Planning Estimates

General Conditions  
Steel  
Concrete  
Square Foot

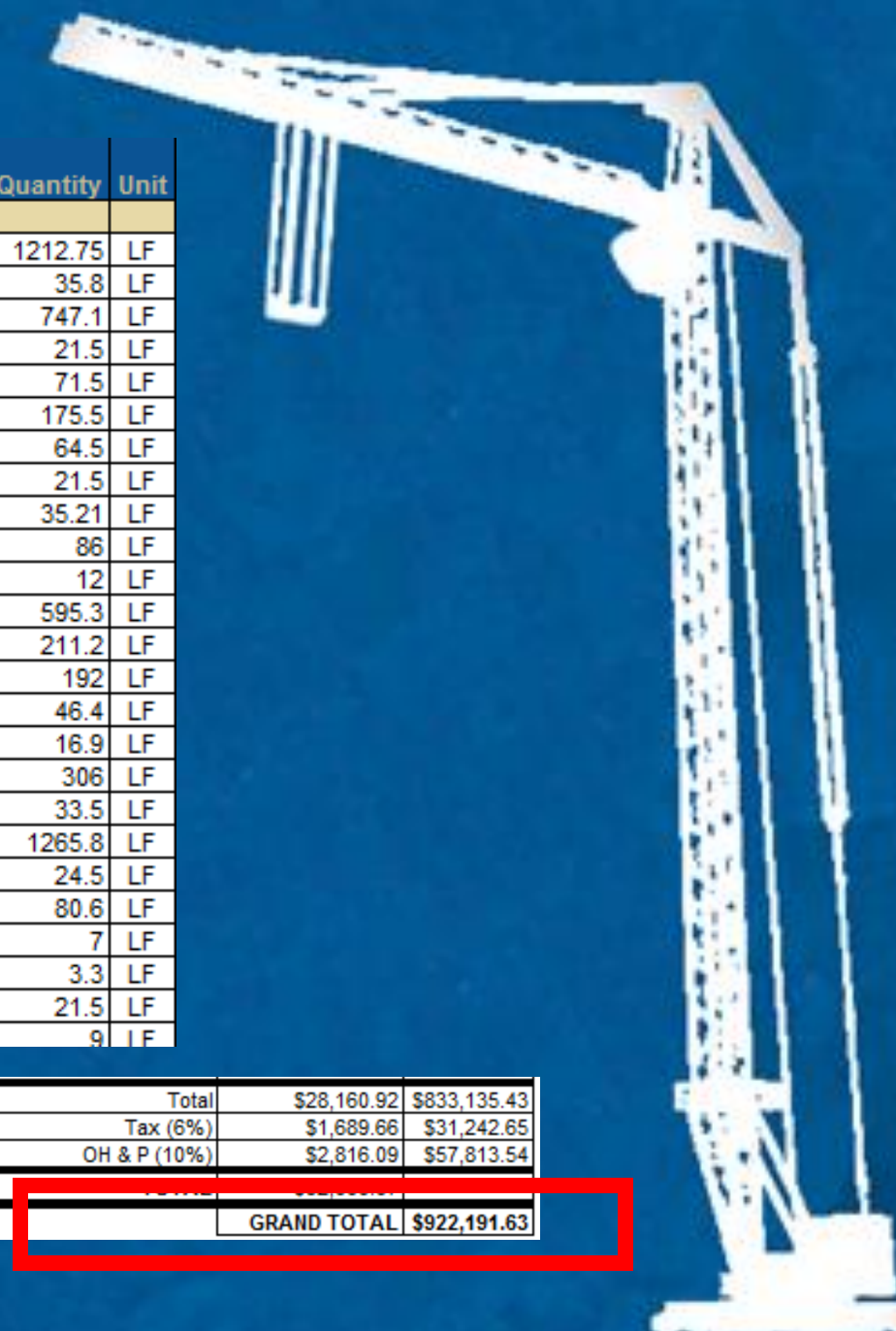
## Cost Engineering Conclusion

# Steel Estimate

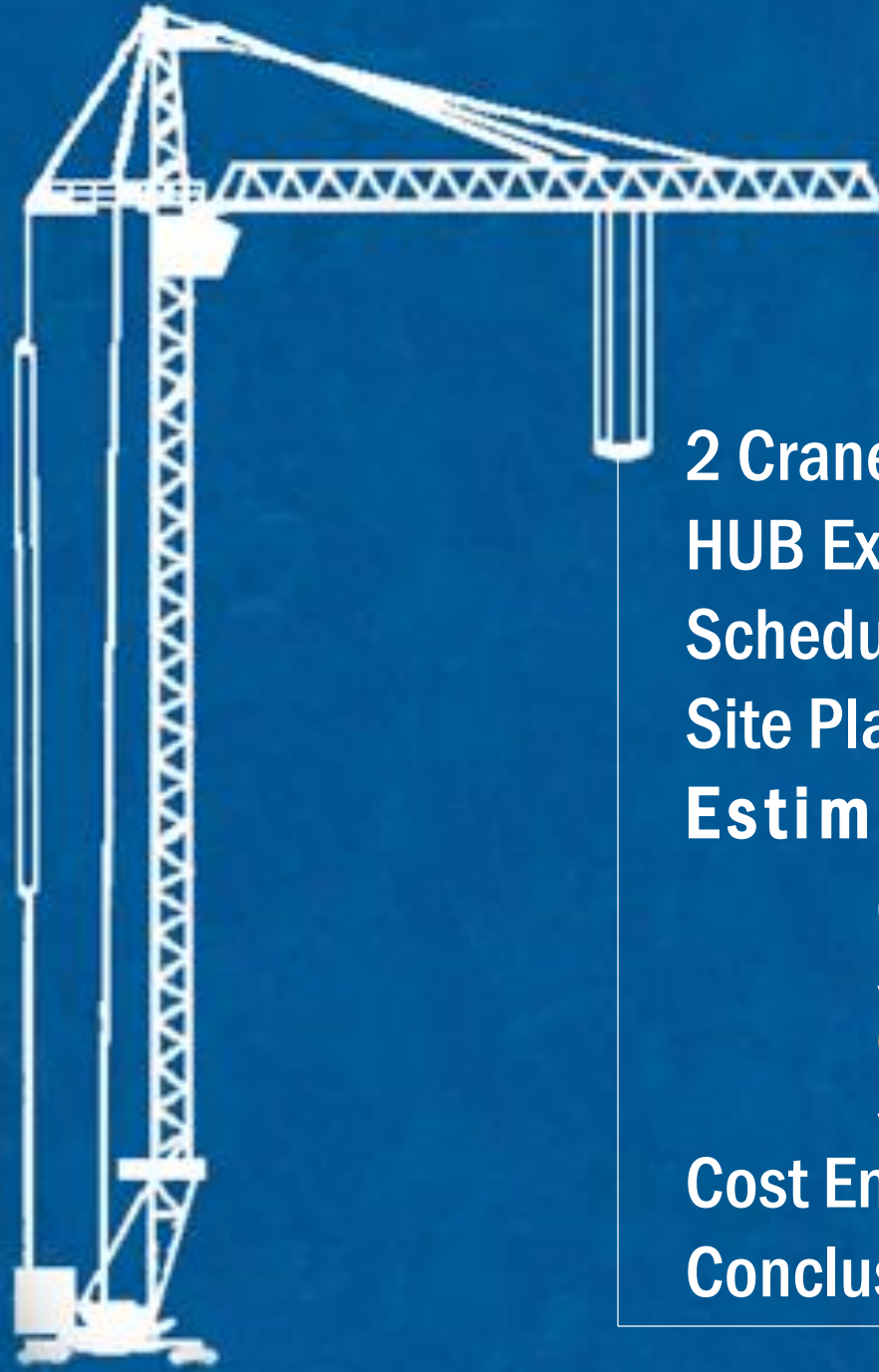
- ☐ Quantity Take-offs by number of pieces, column/beam type, and linear feet
- ☐ RS Means data was used for material, labor, and equipment costs for the appropriate time and location
- ☐ Decking and shear studs were included in the Steel Estimate
- ☐ The crane is intended to be on site for approximately 70 days
- ☐ Column types and lengths were not available in the construction documents received so a generic size and length was used.

Line Number	Description	# of Pieces	Quantity	Unit
Beams and Girders				
51223750600	W 10 x 12	109	1212.75	LF
51223750620	W 10 x 15	2	35.8	LF
51223750700	W 10 x 22	35	747.1	LF
51223750720	W 10 x 26	1	21.5	LF
Interpolated	W 10 x 30	3	71.5	LF
Interpolated	W 10 x 39	8	175.5	LF
Interpolated	W 10 x 45	3	64.5	LF
51223750900	W 10 x 49	1	21.5	LF
Interpolated	W 10 x 54	2	35.21	LF
Interpolated	W 10 x 68	4	86	LF
Interpolated	W 12 x 10	1	12	LF
Interpolated	W 12 x 14	38	595.3	LF
5.12204E+11	W 12 x 16	14	211.2	LF
Interpolated	W 12 x 19	14	192	LF
51223751300	W 12 x 22	3	46.4	LF
Interpolated	W 12 x 24	1	16.9	LF
51223751500	W 12 x 26	13	306	LF
51223751700	W 12 x 72	1	33.5	LF
Interpolated	W 14 x 22	62	1265.8	LF
51223751900	W 14 x 26	1	24.5	LF
51223752100	W 14 x 30	3	80.6	LF
51223752300	W 14 x 34	1	7	LF
Interpolated	W 14 x 38	1	3.3	LF
51223752320	W 14 x 43	1	21.5	LF
Interpolated	W 14 x 48	1	9	LF

Total	\$492,549.97	Total	\$57,424.54	Total	\$28,160.92	\$833,135.43
Tax (6%)	\$29,553.00	Tax (6%)	-	Tax (6%)	\$1,689.66	\$31,242.65
OH & P (10%)	\$49,255.00	OH & P (10%)	\$5,742.45	OH & P (10%)	\$2,816.09	\$57,813.54
<b>TOTAL</b>	<b>\$571,357.97</b>	<b>TOTAL</b>	<b>\$63,166.99</b>	<b>TOTAL</b>	<b>\$922,191.63</b>	







2 Cranez Construction  
HUB Expansion and Renovation  
Schedule  
Site Planning  
Estimates  
General Conditions  
Steel  
Concrete  
Square Foot  
Cost Engineering  
Conclusion

# Concrete Estimate

- ❑ All structural concrete used is 3000 psi concrete
- ❑ Estimate does not include demolition of existing concrete
- ❑ All slabs are to have a bull float finish

Line Number	Description	Quantity	Unit
<b>Concrete</b>			
033105250130	3000 psi Structural Concrete	910.00	C.Y.
<b>Rebar</b>			
032110600500	Footings, #4 to #7	0.1072428	Ton
032110600600	Slab on Grade, #3 to #7	5.0568	Ton
032110600600	Walls, #3 to #7	3.254	Ton
<b>Wire Mesh</b>			
032205500300	6 x 6 - W2.9 x W2.9 21 lb. per C.S.F	303	C.S.F.
<b>Formwork</b>			
031113450020	Footings, Continuous Wall, Plywood, 1 Use	3380.4	S.F.C.A.
031113651410	5-1/2" high	498.75	L.F.
<b>Vapor Barrier</b>			
072610100600	Vapor retarders, polyethylene vapor barrier .004" thick	7611.45	S.F.
<b>Finishes</b>			
033513300125	Bull float & Manual Float	7611.45	S.F.

Unit Cost	Labor Cost	Equipment Unit Cost	Equipment Cost	Total Cost
135.00	122,850.00	40.50	36,855.00	\$242,997.30
824.60	88.43			\$191.81
754.08	3,813.23			\$8,687.99
575.05	1,871.21			\$5,008.07
24.96	7,562.88			\$11,826.09
2.98	10,073.59			\$28,530.58
1.02	508.73			\$922.69
9.21	70,101.45			\$92,707.46
0.33	2,511.78			\$835.44
Total				\$393,383.76



# Square Foot Estimate

## 2 Cranez Construction HUB Expansion and Renovation Schedule Site Planning Estimates

General Conditions  
Steel  
Concrete  
Square Foot

## Cost Engineering Conclusion

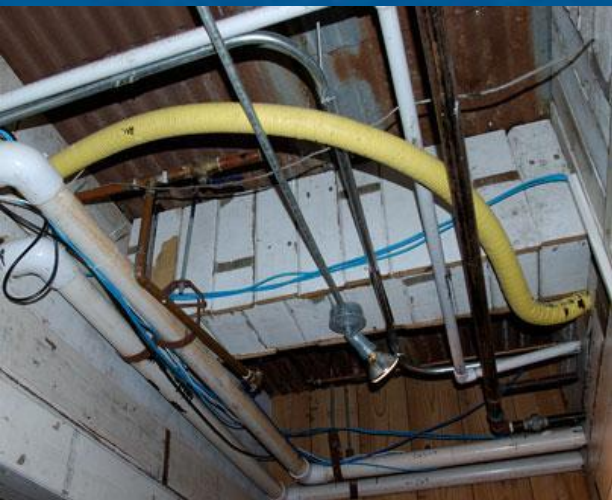
- ❑ Developed using D4 Estimation Cost Database
- ❑ Clemson University New Student Center, Dearborn University Center, and the Idaho Commons
- ❑ Average of the three different building with adjustments applied to both location and time
- ❑ \$245.57/SF for the 35,000 SF of new construction
- ❑ \$445.57/SF for the 37,000 SF of Renovation
- ❑ The additional \$200.00 added to the renovation cost is to cover the cost of demolition

Div. #	Division/Subdivision	%	SF Cost
00	Procurement and Contract Requirements	3.74%	\$10.63
01	General Requirements	5.30%	\$12.39
03	Concrete	6.27%	\$15.46
04	Masonry	3.64%	\$7.91
05	Metals	10.90%	\$26.44
06	Wood, Plastics, and Composites	2.72%	\$7.28
07	Thermal and Moisture Protection	5.16%	\$12.45
08	Openings	8.40%	\$19.09
09	Finishes	15.10%	\$36.62
10	Specialities	0.87%	\$2.04
11	Equipment	0.55%	\$1.75
12	Furnishings	0.31%	\$0.94
14	Conveying Systems	1.03%	\$2.42
15	Mechanical	25.17%	\$60.30
16	Electrical	12.30%	\$29.74
	Total SF Cost for New Construction		\$245.47
	Total SF Cost for Renovation		\$445.47
	New Construction SF		35,000
	Renovation SF		37,000
	Total Cost of New Construction		\$8,591,622.00
	Total Cost or Renovation		\$16,482,571.83
	Total		\$25,074,193.82
	Overhead and Profit (10%)		\$2,507,419.38
	Design Fee (6%)		\$1,504,451.63
	Grand Total		\$29,086,064.83



# Value Engineering/Cost Savings

## Gastite Piping



Original Design	Value Engineered Design
1/2" Steel Pipe	Gastite Flexible Piping
\$3.98/LF	\$5.00/LF
12.6 Labor Hours	7.5 Labor Hours
\$1500	\$850
<b>Savings Per Unit:</b>	<b>44%</b>

2 Cranez Construction  
HUB Expansion and Renovation

Schedule

Site Planning

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**Cost Engineering**

**Value Engineering/Cost Savings**

Cash Flow

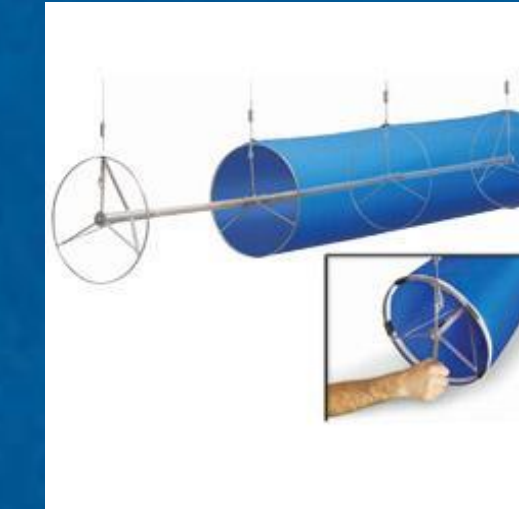
Conclusion



# Value Engineering/Cost Savings

## Ductsox

- Projected 50% overall duct cost savings
- 24.5 % more efficient
  - Iowa State University study
- Easy to install and uninstall for cleaning



2 Cranes Construction  
HUB Expansion and Renovation  
Schedule

Site Planning  
Estimates

**Cost Engineering**

Value Engineering/Cost Savings

Cash Flow

Conclusion



# Cash Flow



2 Cranez Construction  
HUB Expansion and Renovation

Schedule

Site Planning

Estimates

**Cost Engineering**

Value Engineering/Cost Savings

Cash Flow

Conclusion





# Conclusion

Duration: 21 Months

Cost: \$29 Million

Core Values Applied to Project:

- ✓ Safety
- ✓ People
- ✓ Quality
- ✓ Integrity
- ✓ Customer Satisfaction

2 Cranez Construction  
HUB Expansion and Renovation  
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