



ASSOCIATED SCHOOLS OF CONSTRUCTION

ROCKY MOUNTAIN REGION
REGION VI
AK, AZ, CO, ID, MT, NV, NM, UT, WY

FAR WEST REGION
REGION VII
CA, HI, OR, WA

National Preconstruction Problem
February 12-14, 2009

SOLUTION SET

Phase II: Request for Proposals

New Office Building Project
Los Angeles, CA

Problem Sponsor:



PCL Construction Services, Inc.
700 N. Central Avenue, Suite 700
Glendale, CA 91203

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CONTRACT COMPARISON MATRIX - TYPES TO CONSIDER FOR RECOMMENDATION

IV.a.i - Each of these contract forms offer advantages and/or disadvantages to your contemplated relationship with the Owner. Which do you recommend and why?			
Contract Type	Description	Pros	Cons
A101™-2007 (formerly A101™-1997)	Standard Form of Agreement Between Owner and Contractor where the Basis of Payment is a Stipulated Sum	Gives Owner fixed price certainty from the beginning.	When Contractor comes in early in design, there are many unknowns which require significant contingencies in order to guarantee price, keeping budget up. As these issues are resolved, Owner does not benefit from resolution, so is not incentivized to participate. Since a productive preconstruction effort is anticipated, this document does not create the right framework to fully benefit the project.
A101™ CMA-1992	Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Construction Manager-Adviser Edition	Unsophisticated (or understaffed) Owner gets a CM to advise and manage GC, and to act as its representative throughout construction.	Adds an interface between Owner and Contractor, usually adversarial, as CM must question/beat up on Contractor to “earn” its fee. If Owner is reasonably savvy, and has trust & confidence in Contractor, an unnecessary and unproductive additional layer. This Owner is sophisticated enough to not require this service, and should develop a direct construction relationship with its Contractor.

CONTRACT COMPARISON MATRIX - TYPES TO CONSIDER FOR RECOMMENDATION

Contract Type	Description	Pros	Cons
A102™–2007 (formerly A111™–1997)	Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (GMP)	Gives Owner early guaranteed price for development/financing decisions. Allows contingent solutions to be explored and resolved, and allows Owner & Contractor shared savings benefit from these solutions. Owner will only pay actual Cost of Work plus overhead & fees, up to the GMP. The best choice for this project's challenges.	Requires more budget tracking, both in precon and during construction, as actual costs are reported in detail. More complex administration.
A105™–2007 (formerly A105™–1993 and A205™–1993)	Standard Form of Agreement Between Owner and Contractor for a Residential or Small Commercial Project	A simplified form which integrates general conditions, suitable for small projects with stipulated sum (fixed price) and relatively short duration.	Not appropriate for larger, more complex projects, or those of longer duration. Not inherently integrated with the other AIA documents which would be appropriate for this project.
A141™–2004 (replaces A191™-1996)	Agreement Between Owner and Design-Builder	Intended as an integrated document when Owner has selected Design-Build as a delivery method, does not link w/A201 General Conditions.	Although Design-Build is often an attractive solution, this Owner has elected to directly engage the design team; this is the wrong document for the selected delivery method.

SOLUTION

3a.) Budget-Preconstruction and Construction Services Agreement

Should your firm be selected, you will be expected to execute the attached Preconstruction and Construction Services Agreement. It will serve as an interim agreement to authorize the start of preconstruction services and memorialize agreed business deal points (commercial terms) until superseded by an executed contract.

Use the services contemplated in this Preconstruction and Construction Services Agreement as your guide in preparing your preconstruction budget in exercise 3c.

After you have completed all the budget exercises in section 3, complete the Preconstruction and Construction Services Agreement provided herein, with your proposed business terms.

Check the submitted Preconstruction and Construction Services Agreement for the following items.

- Page 1, did the Team insert the name of the Contractor?
- Item B.1, did the Team insert the AIA _____ Form of Agreement?
- Item B.4, did the Team insert the proposed Contractor Fee?
- Item B.4, did the Team insert the shared of savings split?
- Item B.11, did the Team insert the name of the Contractor's representative?
- Page 3, did the Team sign the document and insert By, Name & Title information?
- Is Exhibit A, Itemized Preconstruction Budget Attached?
- Is Exhibit B, General Conditions Expense Attached?

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Preconstruction & Construction Services Agreement

This Preconstruction and Construction Services Agreement (Agreement) is made and entered into this 14th day of February, 2009, between *PRIHD Development Partnership* (Owner) and _____ (Contractor), with reference to the following facts:

- I. Owner is defined herein as *PRIHD Development Partnership* but will include any successors or assigns of *PRIHD Development Partnership* including any LLC or other entity to whom the property or the project is transferred.
- II. Owner owns a parcel of real property in California (Property)
- III. Owner contemplates developing *The Fox Office Building Project* on the Property (Project) and desires to employ Contractor to provide preconstruction and construction services.

Now therefore in consideration of the mutual covenants and agreements set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Owner and Contractor agree as follows:

A. Preconstruction Services: Preconstruction services to be provided by Contractor include, but are not limited to, cost estimating, value engineering, scheduling, construction phasing, constructibility review, weekly design review meetings with the Owner, input from key subcontractors as to building systems, and means & methods of construction. Preconstruction is expected to last six months. More specifically, Contractor will:

1. Provide scheduling and estimating services:
 - a. Building on budget submitted with the RFP, update conceptual estimate from preliminary plans based on historical costs adjusted to location and time as a control budget. This control budget will be reviewed by the project team, modified as required, and developed into a mutually agreeable budget itemized into cost systems for each component.
 - b. Prepare preliminary estimates for each phase of the work as information becomes available (once at completion of DDs, once at 50% CDs). The control budget will be revised and updated accordingly.
 - c. Provide value engineering input by reviewing conceptual and working drawings during their preparation focusing on construction methods and details. Cost analyses of design options will be carried out and recommendations made for alternatives to be included in the bid packages.
 - d. Evaluate market conditions and schedule bid calls to obtain the most competitive prices commensurate with overall project scheduling.
 - e. Prepare cash flow projections and update regularly.
 - f. Prepare a preliminary schedule following initial review of the project. This schedule will contain activities integrating the whole team to include

- entitlements, permits, approvals, design development, bid packages and construction. Schedule will be provided for Owner's approval in conjunction with the preliminary drawings and conceptual estimate.
- g. Update and revise the approved master schedule as necessary to coordinate the ongoing activities of all members of the project team, with major updates/increase in detail in conjunction with the DD and 50%CD budget updates.
 - h. Monitor progress on both design and other preconstruction activities with regular reports indicating the responsibility for any corrective action.
 - i. Provide input as required to Owner's entitlement process which is anticipated to conclude in July 2009.
2. Provide constructibility review of the bid documents. This review will verify and help identify any problems in the following areas:
 - a. Reasonableness of work sequence, interface relationships, and periods of performance.
 - b. Adequacy of lead times for material and equipment procurement.
 - c. Accuracy of job-site description and depiction of conditions.
 - d. Degree of site restrictions and adequacy of access, work areas and disposal sites.
 - e. Availability of utility connections for construction.
 - f. Consideration of the impact of adverse weather on the CPM schedule and milestone operations.
 - g. Impact upon and plans for pedestrian and vehicular traffic and ongoing operations.
 3. Work with Owner to update the preliminary (RFP) Site Plan that will provide additional logistics guidelines and detail. The Site Plan will include:
 - a. Location of temporary buildings, lunchrooms, etc.
 - b. Location of temporary gas lines and power services.
 - c. Assist entitlement team in utility company negotiations with respect to permanent utility relocations.
 - d. Material storage areas.
 - e. Access roads and gates.
 - f. Temporary fencing and gates.
 - g. Location and boom radius of crane, personnel, personnel/material hoist, saws, concrete pumps, and all other construction equipment.
 - h. Delivery and unloading areas (concrete, precast, rebar, structural steel, etc.) including traffic flow.

- i. Prefab and precasting areas (if required).
- j. Subcontractors' offices and storage areas.
- k. Consultant's office, testing labs, etc.
- l. Footprint of the building, existing street, overhead lines, fire hydrant, vaults, traffic signals, bus stops, other buildings, utilities (e.g. gas, water, sewer) and items to be protected (e.g. trees).
- m. Worker access gates.
- n. Worker parking during construction.
- o. Safety/first aid locations including emergency meeting place and safety bulletin board.
- p. Hazardous Storage i.e. gasoline, oxygen, acetylene, PCB's, paint, etc.
- q. Outline of excavation/shoring.
- r. Property lines.
- s. Special Conditions (phased areas, prohibited areas, environmental issues, dewatering, etc).
- t. Emergency shutoffs.
- u. Public protection, safety, and, if impacted, flow (pedestrian/vehicle) around project.

4. Compensation: Owner shall pay Contractor for Preconstruction Services as follows:

Preconstruction budget is as itemized in Exhibit A.

Is Exhibit A attached?

B. Construction Services: The parties to this agreement will enter into a Contract for Construction Services which will incorporate and supercede this Agreement. This Contract will be based on the following terms:

- | | |
|---|---|
| 1. Form of Contract: | ATA A102-2007 Standard Form of Agreement Between Owner and Contractor, modified as mutually agreed. |
| 2. Documents used to establish final price: | Building Department submittal. |
| 3. General Conditions Expense: | As itemized in project budget Exhibits B, and as further mutually agreed; included in GMP. |
| 4. Contractor Fee | 3.3 %, included in GMP. |
| 5. Project Contingency - Share of | Split 75% / 25% Owner-Contractor |

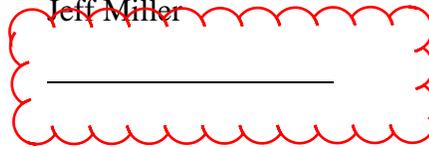
Range:
3% to 5%

Are Exhibits B attached?

Range 25/75 to 75/25

Savings:

- 6. Payment & Performance Bond: Excluded, but can be furnished.
- 7. Preconstruction Services: As detailed in paragraph 4 above.
- 8. Payment: Progress billings submitted by the 25th of the month will be paid by the 20th following.
- 9. Retention: Ten percent (10%), with early release for mutually agreed sub-trades.
- 10. Owner's representative: Jeff Miller
- 11. Contractor's representative: _____



- C. Construction Management Services: Prior to Owner's issuance of a Notice to Proceed with Construction, it may elect to engage Contractor to provide Construction Management Services for hazardous material mitigation & removal, building demolition, and site clearing. Costs for these services are not included in the scope of this Preconstruction & Construction Services Agreement.
- D. No Partnership: This Agreement shall not be construed as creating a partnership or joint venture between Owner and Contractor, or between them and any third party, nor cause either of them to be responsible in any manner for the other's or any third party's debts or obligations.
- E. Assignment: Neither this Agreement nor any interest herein may be assigned by either party without the prior written consent of the other. Should Property be sold, this Agreement shall survive and be assigned to buyer as a condition of the sale.

IN WITNESS WHEREOF, the parties have executed this Preconstruction Services Agreement to be effective as of the Day and year first above written.

Owner

PRIHD Development Partnership

By: _____

Name: _____

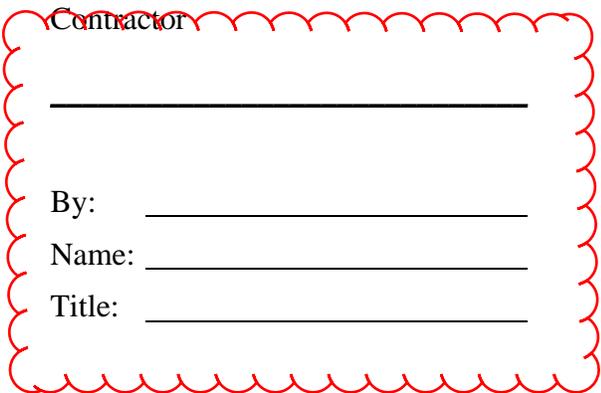
Title: _____

Contractor

By: _____

Name: _____

Title: _____



3b.) Budget-Conceptual Estimate Summary

The Owner has requested a budget submittal as part of your proposal. A budget summary worksheet is attached, with several missing line items. Work from subsequent section of section 3 budget exercises will need to be completed and the information transferred to this Conceptual Estimate Summary. You will also need information from your proposed construction schedule in section 4 to complete many of these exercises.

- Complete exercise 3c, to determine the input value for the Preconstruction Services line item in the Conceptual Estimate Summary (CES).
- Complete exercise 3d, to determine the input values for the Construction General Expense (both staff and Overhead/Equipment) line items in the Conceptual Estimate Summary (CES).
- Complete exercise 3e, to determine the input value for the Concrete Slab on Metal Deck line item in the Conceptual Estimate Summary (CES).
- Complete exercise 3f, to determine the input value for the Structural Steel line item in the Conceptual Estimate Summary (CES).
- Complete exercise 3g, to determine the input value for the Bldg Electrical line item in the Conceptual Estimate Summary (CES).
- Calculate the Total Cost line item with the above inputs.
- Insert your Firm's proposed Fee % and amount.
- Calculate the Total Bid.

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YOUR FIRM:S NAME
LOCATION

CONCEPTUAL ESTIMATE SUMMARY

Owner: PRIHD
Project: FOX OFFICE BUILDING
Location: Los Angeles, CA

Designer: Langdon Wilson
Area: 523,244 SF

Description	Quantity	UoM	Unit Price	Cost	Remarks
DIRECT COSTS					
PRECONSTRUCTION SERVICES	1.0	LS		230,302	Answer may vary depending on staff
SITework	1.0	LS		5,998,256	
SHOTCRETE WALLS	1.0	LS		666,541	
CONCRETE	1.0	LS		7,899,237	
CONCRETE SLAB ON METAL DECK	1.0	LS		926,595	
CONCRETE REINFORCING	1.0	LS		2,861,568	
MASONRY	1.0	LS		280,356	
STRUCTURAL STEEL	1.0	LS		3,221,357	
METAL DECK & MISC METALS	1.0	LS		1,778,223	
WOOD & PLASTIC	1.0	LS		104,462	
THERMAL/MOISTURE PROTECTION	1.0	LS		998,261	
DOORS & WINDOWS	1.0	LS		3,606,336	
FINISHES	1.0	LS		3,872,241	
SPECIALTIES	1.0	LS		206,182	
BUILDING EQUIPMENT	1.0	LS		110,837	
CONVEYING SYSTEMS	1.0	LS		1,504,314	
BLDG MECHANICAL	1.0	LS		4,839,189	
BLDG ELECTRICAL	1.0	LS		2,372,177	
SUBCONTRACTOR BONDS	1.0	LS		564,864	
STREET USE IMPACTS	1.0	LS		50,000	
DIRECT COSTS				42,091,298	
GENERAL EXPENSE COSTS					
PROJECT STAFF	1.0	LS		1,396,615	Answer may vary depending on staff
PROJECT OVERHEAD & EQUIP	1.0	LS		664,281	Answer may vary depending on durations
INSURANCE/BONDS/TAXES	1.0	LS		667,481	
GENERAL EXPENSE COSTS				2,728,377	
TOTAL COST				44,819,675	
Fee	3.30%	%		1,479,049	Answer may vary depending on fee %
CONTRACTOR'S CONTINGENCY	0.75%	%		336,148	Answer may vary depending above variance
TOTAL BID				46,634,872	Answer may vary depending on above variances

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3c.) Budget-Preconstruction Services

- Review the Preconstruction and Construction Services Agreement in section 3a and prepare an appropriate preconstruction staff budget for inclusion in the Conceptual Estimate Summary where noted.
- Use your preconstruction schedule to determine the timeframes and duration each proposed preconstruction team member will be needed during this phase of the project.
- Remember, preconstruction personnel generally work on multiple projects at one time and generally not charged full time against any given project. Not all personnel are needed for the full duration of the preconstruction schedule.
- Staff billing rates are provided below for your use.

Billing Rates	Per Hour
Preconstruction Manager	110.00
Construction Manager	110.00
Chief Estimator	110.00
Senior Estimator	80.00
Estimator	60.00
Project Superintendent	83.49
Assistant Superintendent	82.15
Project Manager	93.34
Project Engineer	58.91
Office Admin/Accountant	45.00
Safety Coordinator	50.00
QC Supervisor	55.00
Secretary	28.57
Scheduler	60.00

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FOX OFFICE BUILDING
Los Angeles, CA

EXHIBIT - A

PRECONSTRUCTION STAFF BUDGET

ITEM	QTY		RATE	MH	LABOR	UNIT	MATERIAL	UNIT	EQUIP/SUB	TOTAL
PRECONSTRUCTION STAFFING	7.00	MO								
PROJECT EXECUTIVE		MO	(Home Office Overhead)				0		0	0
PRECONSTRUCTION MANAGER	3.50	MO	110.00	607	66,733		0		0	66,733
CONSTRUCTION MANAGER	1.00	MO	110.00	173	19,067		0		0	19,067
CHIEF ESTIMATOR	1.00	MO	110.00	173	19,067		0		0	19,067
SR ESTIMATOR	1.00	MO	80.00	173	13,867		0		0	13,867
ESTIMATOR	2.00	MO	60.00	347	20,800		0		0	20,800
PROJ SUPERINTENDENT	2.00	MO	83.49	347	28,943		0		0	28,943
PROJECT MANAGER	3.50	MO	93.34	607	56,626		0		0	56,626
SCHEDULER	0.50	MO	60.00	87	5,200		0		0	5,200
(Add to and Expand this Spread Sheet as Necessary)										
TOTAL BUDGET - PRECONSTRUCTION				2,513	230,302		-		-	230,302

EXTENDED BY _____

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3d.) Budget-General Condition

- Prepare an appropriate construction general conditions budget for inclusion in the Conceptual Estimate Summary where noted.
- There are 2 parts for this exercise, part 1 is a budget for staff during the construction phase. Part 2 is a budget for overhead and equipment during the construction phase.
- Use your preliminary construction schedule to determine the timeframes and duration, each proposed construction staff team member and overhead/equipment items, will be needed during this phase of the project.
- Staff billing rates are provided below for your use.

Billing Rates	Per Hour
Preconstruction Manager	110.00
Construction Manager	110.00
Chief Estimator	110.00
Senior Estimator	80.00
Estimator	60.00
Project Superintendent	83.49
Assistant Superintendent	82.15
Project Manager	93.34
Project Engineer	58.91
Office Admin/Accountant	45.00
Safety Coordinator	50.00
QC Supervisor	55.00
Secretary	28.57
Scheduler	60.00

- Overhead and equipment rates are provided on the next page for your use.

ITEM		MATERIAL	SUBCONTRACT	REMARKS
GENERAL EXPENSE EQUIPMENT/OVERHEAD				
MAN/MATERIAL HOIST	MO		21,000.00	Includes install and dismantling costs
FINAL CLEANUP	SF		0.06	
FINAL CLEANUP -SITE	LS		7,500.00	
PICKUP	MO		750.00	Rental
PICKUP	MO	250.00		Fuel & maintenance
FORKLIFT - SMALL	MO		960.00	
MISC EQUIP RENTALS	MO		900.00	
TEMP BLDGS	MO		1,350.00	
TOOL CRIBS	MO		200.00	
TEMP TOILETS/WASH STATIONS	MO		135.00	Assume one per ten workers per month
MOVE IN & OUT	LS	500.00	11,000.00	Includes contractor's labor force
TEMP CONSTRUCTION WATER	MO	450.00		
TEMP WATER - DRINKING	MO	50.00		
PARKING - PCL STAFF (\$8/DAY/PERSON)	MO	168.00		Assume each jobsite staff for their duration
PROJECT SIGNS	EA	1,300.00	1,300.00	Includes contractor's labor force
COURIER/EXPRESS SERVICE	MO	500.00		
TELEPHONE INSTALL	LS	2,000.00		
TELEPHONE USAGE	MO	600.00		
COMPUTER LINE CHARGES	MO	150.00		
SITE RADIOS	MO	350.00		
CELL PHONES	MO	150.00		
FAX MACHINE	MO	65.00		
COMPUTER STATIONS	MO	130.00		
OFFICE SUPPLIES	MO	800.00		
OFFICE FURN/EQUIP	LS	7,500.00		
COPIER	MO	650.00		
PHOTOS	MO	125.00		
SAFETY MEETINGS	MO	250.00		
MEDICAL EQUIP/SUPPLIES	LS	125.00		
SAFETY/WEATHER WEAR	LS	2,500.00		
TEMP FIRE PROTECTION	MO	150.00		
WARNING/SAFETY SIGNS	LS	2,000.00		
LOSSES - UNINSURED	LS	5,000.00		
SECURITY - ALARM SYSTEM	MO	95.00		
STAIRS & LADDERS	VLF	20.00	15.00	Includes contractor's labor force
TEMP FENCES	LF		4.19	
HOUSEKEEPING	WK		600.00	Includes contractor's labor force
TRASH REMOVAL	WK	400.00		
OPERATING MANUALS	LS	2,500.00		
AS-BUILT DRAWINGS	LS	2,500.00		
DRAWING REPRODUCTION	LS	10,000.00		
CONSTRUCTION DRAWINGS	EA	350.00		
CASUAL MEALS	MO	400.00		
TO/FROM EXPENSE	MI	0.48		Business mileage expense reimbursement

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FOX OFFICE BUILDING
Los Angeles, CA

EXHIBIT - B

EQUIPMENT & OVERHEAD BUDGET

X	ITEM	QTY	RATE	MH	LABOR	UNIT	MATERIAL	UNIT	EQUIP/SU	TOTAL
	GENERAL EXPENSE EQUIPMENT/OVERHEAD									
	MAN/MATERIAL HOIST	9			0		0	21000	189,000	189,000
	FINAL CLEANUP	534,000			0		0	0.06	32,040	32,040
	FINAL CLEANUP -SITE	1			0		0	7500.00	7,500	7,500
	PICKUP	22			0	250	5,500	750.00	16,500	22,000
	FORKLIFT - SMALL	21			0		0	960.00	20,160	20,160
	MISC EQUIP RENTALS	21			0		0	900.00	18,900	18,900
	TEMP BLDGS	21			0		0	1350.00	28,350	28,350
	TOOL CRIBS	21			0		0	200.00	4,200	4,200
10	TEMP TOILETS/WASH STATIONS	21			0		0	135.00	28,350	28,350
	MOVE IN & OUT	1	55.36	200	11,072	500	500		-	11,572
	TEMP CONSTRUCTION WATER	21			0	450	9,450		-	9,450
	TEMP WATER - DRINKING	21			0	50	1,050		-	1,050
5	PARKING - PCL STAFF (\$8/DAY)	21			0	168	17,640		-	17,640
	PROJECT SIGNS	1	55.36	24	1,329	1,300	1,300		-	2,629
	COURIER/EXPRESS SERVICE	21			0	500	10,500		-	10,500
	TEMP POWER INSTALL	W/ELECTRICAL SUB			0		0		-	0
	TEMP POWER CONSUMPTION	BY OWNER			0		0		-	0
	TELEPHONE INSTALL	1			0	2,000	2,000		-	2,000
	TELEPHONE USAGE	21			0	600	12,600		-	12,600
	COMPUTER LINE CHARGES	21			0	150	3,150		-	3,150
	SITE RADIOS	21			0	350	7,350		-	7,350
2	CELL PHONES	21			0	150	6,300		-	6,300
	FAX MACHINE	21			0	65	1,365		-	1,365
	COMPUTER STATIONS	124			0	130	16,120		-	16,120
	OFFICE SUPPLIES	21			0	800	16,800		-	16,800
	OFFICE FURN/EQUIP	1			0	7,500	7,500		-	7,500
	COPIER	21			0	650	13,650		-	13,650
	PHOTOS	21			0	125	2,625		-	2,625
	SAFETY MEETINGS	21			0	250	5,250		-	5,250
	MEDICAL EQUIP/SUPPLIES	21			0	125	2,625		-	2,625
	SAFETY/WEATHER WEAR	1			0	2,500	2,500		-	2,500
	TEMP FIRE PROTECTION	21			0	150	3,150		-	3,150
	WARNING/SAFETY SIGNS	1			0	2,000	2,000		-	2,000
	LOSSES - UNINSURED	1			0	5,000	5,000		-	5,000
	SECURITY - ALARM SYSTEM	21			0	95	1,995		-	1,995
	STAIRS & LADDERS	196	59.23	49	2,902	20	3,920		-	6,822

X	ITEM	QTY	RATE	MH	LABOR	UNIT	MATERIAL	UNIT	EQUIP/SUI	TOTAL
	TEMP FENCES	1,840			0		0	4.19	7,710	7,710
	HOUSEKEEPING	90	50.73	1,080	54,788		0		-	54,788
	TRASH REMOVAL	90			0	400	36,000		-	36,000
	OPERATING MANUALS	1			0	2,500	2,500		-	2,500
	AS-BUILT DRAWINGS	1			0	2,500	2,500		-	2,500
	DRAWING REPRODUCTION	1			0	10,000	10,000		-	10,000
	CONSTRUCTION DRAWINGS	40			0	350	14,000		-	14,000
	CASUAL MEALS	21			0	400	8,400		-	8,400
	TO/FROM EXPENSE	13,000			0	0.48	6,240		-	6,240
	(Add to and Expand this Spread Sheet as Necessary)									
	TOTAL BUDGET - EQUIPMENT/OVERHEAD				70,091		241,480		352,710	664,281

EXTENDED BY _____

CHECKED BY _____

3e.) Budget-Concrete Slab on Metal Deck

- In this exercise your Team will complete the Concrete Slab on Metal Deck estimate for inclusion in the Conceptual Estimate Summary where noted.
- Some information in the Concrete SOMD worksheet has been provided and you may assume this information is correct.
- Using the drawings and other supplemental information provided, obtain quantities for the various line items of work in the SOMD worksheet.
- Apply the appropriate unit rates for labor, material and equipment/subcontract to complete the estimate for this phase of work.
- Drawing References
 - S1.21-TYPICAL STEEL METAL DECK DETAILS
 - S2.06-2ND LEVEL FRAMING PLAN
 - S2.07-3RD LEVEL FRAMING PLAN
 - S2.08-4TH LEVEL FRAMING PLAN
 - S2.09-5TH LEVEL FRAMING PLAN
 - S2.10-ROOF PENTHOUSE FRAMING PLAN
 - S2.11-MECHANICAL PENTHOUSE ROOF FRAMING PLAN
- Other Information
 - Use D-1 steel decking mark everywhere deck is required on typical floors
 - Use D-1 and/or D-4 steel decking mark on the roof as indicated on the drawings
 - Effective SOMD place/finish ranges from 10,000sf to 16,000sf per day.
 - Budget 3000 psi hardrock concrete delivered at \$90/cy
 - Budget 3000 psi lightweight concrete delivered at \$110/cy
 - Concrete pump is \$220/hr + \$3.00/cy + \$100/day move in/out
 - Assume concrete pump averages 50cy/hr production
 - Based upon your pour cycle, figure the average cost/cy for pumping and use this average rate in the SOMD worksheet for concrete pumping
 - Concrete placing labor crew rate is \$52.00/mh, fully burdened
 - Assume a Laborer places 1.67cy of concrete per hour
 - Cement finishing labor crew rate is \$55.78/mh, fully burdened
 - Assume a Finisher trowel finishes 1000 sf of slab per day
 - Assume a Finisher broom finishes 1333 sf of slab per day

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3f.) Budget-Structural Steel

- In this exercise your Team will complete the Structural Steel estimate for inclusion in the Conceptual Estimate Summary where noted.
- Some information in the Structural Steel worksheet has been provided and you may assume this information is correct.
- Using the drawings and other supplemental information provided, obtain quantities for the various line items of work in the Structural Steel worksheet.
- Apply the appropriate unit rates to complete the estimate for this phase of work.
- Drawing References
 - S2.05B-GROUND LEVEL SLAB DEPRESSION PLAN
 - S2.06-2ND LEVEL FRAMING PLAN
 - S2.07-3RD LEVEL FRAMING PLAN
 - S2.08-4TH LEVEL FRAMING PLAN
 - S2.09-5TH LEVEL FRAMING PLAN
 - S2.10-ROOF PENTHOUSE FRAMING PLAN
 - S2.11-MECHANICAL PENTHOUSE ROOF FRAMING PLAN
- Other Information
 - The Structural Engineer has not completed the steel design and has indicated an allowance to be utilized in the development of the budget estimate which is based upon the building area.
 - The unit price market for a structural steel frame of this design is \$2,800 per ton.

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Fox Office Building 103
Los Angeles, CA

STRUCTURAL STEEL ESTIMATE

ITEM	QTY		CREW RATE	PROD RATE	LABOR		MATERIAL		EQUIP/SUBCONTRACT		TOTAL COST
					MH	COST	UNIT	COST	UNIT	COST	
STRUCTURAL STEEL											
Total Building Area =	209,179	sf									
Engr's Steel Allowance =	11	#/sf									
Estimated Pounds of Steel =	2,300,969	#									
Estimated Tonnes of Steel =	1,150	TN									
Unit Price per Ton =	2,800	\$/TN									
Structural Steel	1,150	TN	-		-	0	-	0	2,800	3,221,357	3,221,357
SUBTOTAL DIRECT COSTS - SOMD						0		0		3,221,357	3,221,357
EQUIP & OVERHEAD (SOMD)		%				0	0%	0	--		0
TOTAL COSTS - SOMD											3,221,357
FEE (on Self Performed Work)		%				0	0%	-	0		0
TOTAL BID - STRUCTURAL STEEL											3,221,357

STRUCTURAL STEEL ESTIMATE

EXTENDED BY _____
CHECKED BY _____

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3g.) Budget-Electrical Recap

- In this exercise your Team will review 3 actual Electrical bids and complete the Electrical Recap Worksheet.
- Determine the lowest responsive bidder and include Electrical budget total from the recap worksheet in the Conceptual Estimate Summary where noted.
- Some information in the Electrical Recap worksheet has been provided and you may assume this information is correct
- Information in one or more of the electrical bids maybe incomplete, your team may make reasonable assumptions that are based upon a fictitious telephone call to the respective electrical bidder, to determine incomplete information. Note any assumptions on the bottom of the electrical recap card.

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Description		PCL Budget	Dynalectric	Morrow-Meadows	Rosendin
Electrical					
Base Bid		2,287,800	2,345,600	2,392,200	2,160,000
Design Fee	By Owner		excl	excl	excl
Fire Alarm System	Owner's S		incl	incl	incl
Temp Power			incl	incl	incl
Utility Company Charges	By Owner		excl	excl	excl
Electrical Permit			incl	incl	incl
Warranty Costs			incl	incl	incl
Parking- Offsite + Shuttle			incl	incl	156,000
Bid RFI Deducts/adds				(24,500)	18,200
Site Lighting Allowance		80,500	incl	incl	incl
Lobby Lighting Allowance		25,000	incl	incl	incl
Temp Power Install		92,000	incl	incl	incl
Temp Power Maintain		26,894	incl	incl	incl
M/E Coordinator 1/2 Time		37,977	37,977	37,977	37,977
Sales Tax	\$\$ Include		Y	Y	Y
BONDABLE	\$\$ Not Inc		Y	Y	Y
PER PLANS AND SPECS			Y	Y	Y
ADDENDUM 1 & 2			Y	Y	Y
UNION /NON UNION			Union	Union	Union
ELECTRICAL		2,550,171	2,383,577	2,405,677	2,372,177

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TAB 4

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4. Schedule

As part of your review with management, you will be required to present a complete, workable Critical Path Schedule (CPM) to plan the work within the guidelines prescribed below. As this is a preconstruction services problem, upper management is equally interested in the activities and your thought processes in the preconstruction phase as in the construction phase. The schedule is to convey your teams plan to fully execute the project from cradle to grave.

The following criteria explain the background information and requirements of the CPM schedule you team will present.

1. General Schedule Criteria:
 - a. Presentation Criteria:
 - i. Format:
 1. At minimum, show Activity ID, Activity Description, Original Duration (OD), Early Start (ES), Early Finish (EF), and Total Float (TF), per activity (see Figure "A" below)
 2. Organize and sort Preconstruction activities grouped together with construction activities following.

Figure A: Schedule Activity Example

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	FEB
						18 25
2008 ASC Student Competition						
Design						
01010	Contractor Selection/Notice to	1	14FEB08	14FEB08	0	Contra
Permitting and Entitlements						
01020	MUP Submittal	1	14FEB08	14FEB08	0	MUP S

- ii. Activity Count: 150- 200 activities
 - iii. Provide a sufficient amount of preconstruction and construction activities. Include design, permitting and entitlements, easement negotiations, long lead and construction activities
 - iv. Show the logic between activities
 - v. Clearly show the critical path of the schedule
 - vi. Organize activities so they are easy to read, activities are grouped intuitively and the schedule flows well.
- b. Contractual Criteria
 1. Project Start Date for Preconstruction (Notice to Proceed): February 14, 2009
 2. Preconstruction Period: 7 Months
 3. Project Duration: 19 Months

4. Minimum Milestones to be presented on CPM Schedule:

Contract Award	Permit Submittal (S)
Design Complete	GMP Estimate
Begin Demolition	Parking Structure Complete
Completion of Shoring and Excavation	Structural Steel & Mtl Decks Complete
C of O Inspections	Substantial Completion
Building Enclosure Milestone	Final Completion

5. Assume the following calendar holidays: May 26, 2009, July 04, 2009, September 01, 2009, November 26- 27, 2009, December 25, 2009, January 21, 2010, *June 01, 2010, July 05, 2010*, September 01, 2010, November 25-26, 2010, December 25, 2010, January 01, 2011.

2. Preconstruction Phase Criteria:
 - a) The Architect and consultants will be 75% complete with the Construction Document phase on February 14, 2009.
 - b) The permitting agency will allow phased permitting for shoring and excavation, foundation only, and remaining structure.
 - c) Estimates will be required at the completion of each design phase

3. All other work criteria:
 - a) Original durations for the demolition, excavation, shoring, concrete structure, steel and etc. shall be derived on a (rough) quantitative basis per the "Typical Construction Activity" worksheet and explanation included in the scheduling section of the Supplemental Information. Use the worksheets to calculate durations based upon (rough) quantities that you survey, then divide by a productivity rates that you derive. You may use RS Means or other productivity data resources to help if needed.
 - b) Scheduling of all work should support the assumption made by the Site Logistics Plans drafted in Section 5 below
 - c) Review the plans thoroughly. Ensure that your schedule encompasses as much of the work possible in the limited number of activities you are required to provide.
 - d) Your team may begin construction anytime, provided you have your first permit in hand. You may lag activities as you see fit and are reasonable logic assumptions.
 - e) The last activity in your schedule should be Final Completion.

General comments:

1. Do not resource load or cost load your schedule
2. Preconstruction may overlap construction.
3. When it comes to scheduling, there are not right or wrong answers. Ensure that your team can substantiate and explain all of the assumptions and decisions made in the process of developing your schedule.

Deliverable:

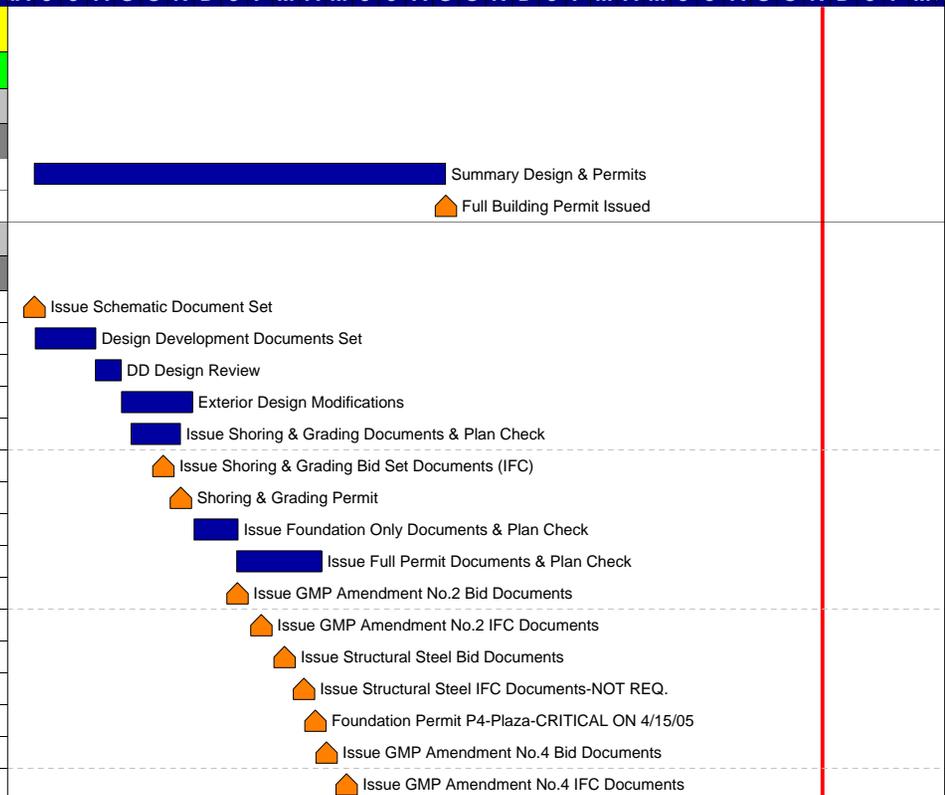
1. *Preconstruction Schedule*

Act ID	Description	Rem Dur	% Comp	Early Start	Early Finish	2004					2005					2006					2007														
						A	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O

Pre-Construction Services

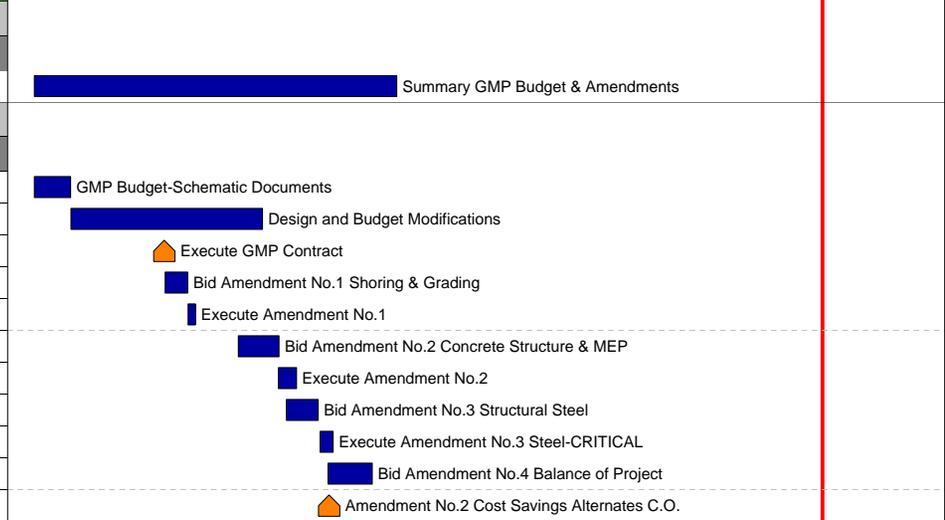
Design and Permits

Summary					
0005	Summary Design & Permits	0 *	100	01JUN04 A	15SEP05 A
0170	Full Building Permit Issued	0	100		15SEP05 A
0010	Issue Schematic Document Set	0	100	01JUN04 A	
0020	Design Development Documents Set	0	100	02JUN04 A	10AUG04 A
0030	DD Design Review	0	100	10AUG04 A	08SEP04 A
0040	Exterior Design Modifications	0	100	09SEP04 A	29NOV04 A
0050	Issue Shoring & Grading Documents & Plan Check	0	100	20SEP04 A	15NOV04 A
0060	Issue Shoring & Grading Bid Set Documents (IFC)	0	100	27OCT04 A	
0070	Shoring & Grading Permit	0	100	16NOV04 A	
0080	Issue Foundation Only Documents & Plan Check	0	100	01DEC04 A	20JAN05 A
0090	Issue Full Permit Documents & Plan Check	0	100	19JAN05 A	26APR05 A
0100	Issue GMP Amendment No.2 Bid Documents	0	100	20JAN05 A	
0110	Issue GMP Amendment No.2 IFC Documents	0	100	16FEB05 A	
0130	Issue Structural Steel Bid Documents	0	100	15MAR05 A	
0140	Issue Structural Steel IFC Documents-NOT REQ.	0	100	06APR05 A	
0120	Foundation Permit P4-Plaza-CRITICAL ON 4/15/05	0	100	19APR05 A	
0150	Issue GMP Amendment No.4 Bid Documents	0	100	02MAY05 A	
0160	Issue GMP Amendment No.4 IFC Documents	0	100	25MAY05 A	



GMP Budget & Amendments

Summary					
0200	Summary GMP Budget & Amendments	0 *	100	01JUN04 A	21JUL05 A
0205	GMP Budget-Schematic Documents	0	100	01JUN04 A	12JUL04 A
0210	Design and Budget Modifications	0	100	13JUL04 A	17FEB05 A
0220	Execute GMP Contract	0	100	28OCT04 A	
0230	Bid Amendment No.1 Shoring & Grading	0	100	29OCT04 A	23NOV04 A
0240	Execute Amendment No.1	0	100	24NOV04 A	02DEC04 A
0250	Bid Amendment No.2 Concrete Structure & MEP	0	100	21JAN05 A	08MAR05 A
0260	Execute Amendment No.2	0	100	08MAR05 A	28MAR05 A
0270	Bid Amendment No.3 Structural Steel	0	100	17MAR05 A	22APR05 A
0280	Execute Amendment No.3 Steel-CRITICAL	0	100	25APR05 A	09MAY05 A
0290	Bid Amendment No.4 Balance of Project	0	100	04MAY05 A	23JUN05 A
0300	Amendment No.2 Cost Savings Alternates C.O.	0	100		04MAY05 A

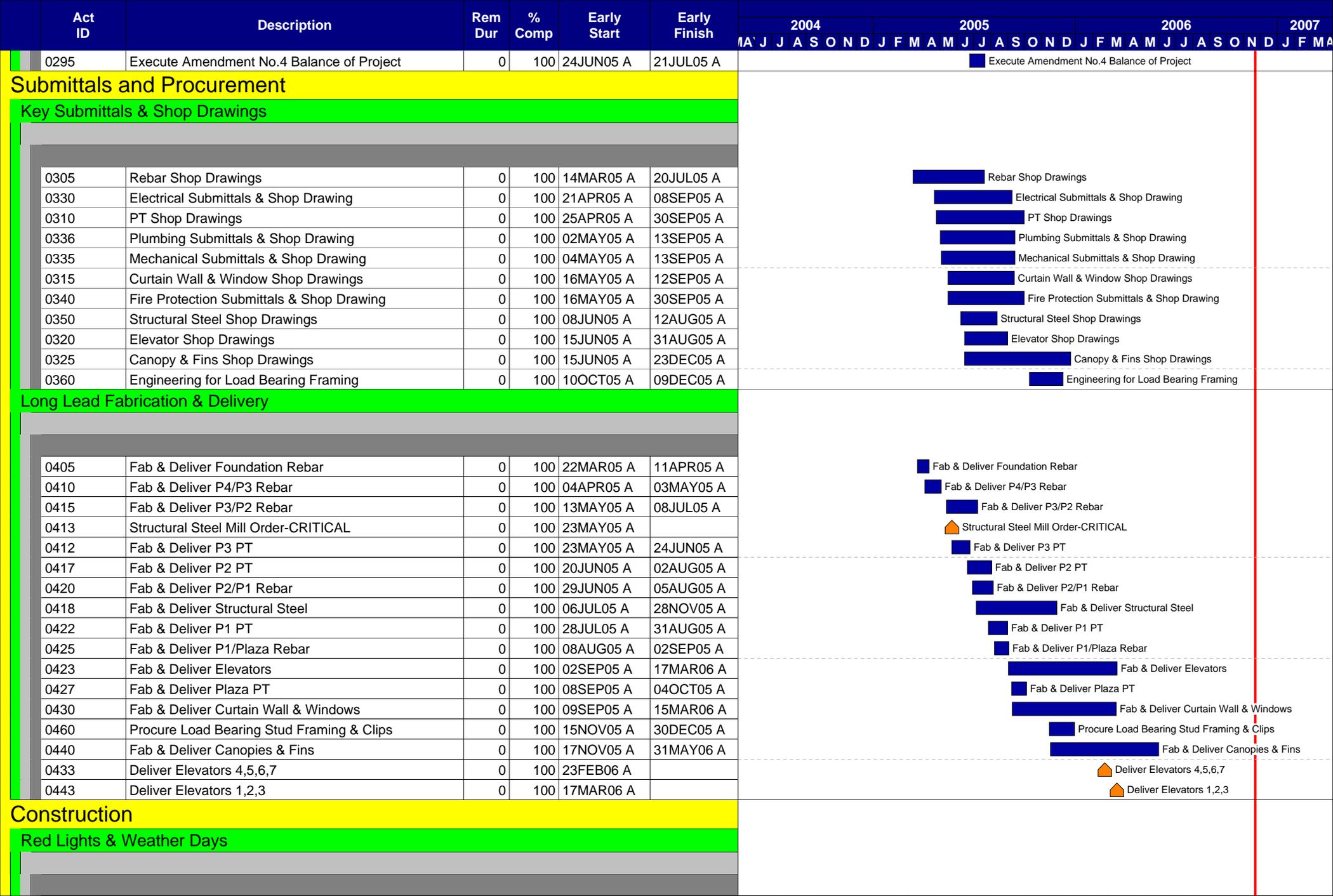


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Page number 1A
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Project name 611A
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- Early bar**
- Progress bar**
- Critical bar**
- Summary bar**
- Start milestone point**
- Finish milestone point**

Fox Studios Office Building 103
 As-Built Schedule
 November 2006

PCL Construction Services, Inc.
Project No. 5200185



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	Early bar
	Progress bar
	Critical bar
	Summary bar
	Start milestone point
	Finish milestone point

Fox Studios Office Building 103
As-Built Schedule
November 2006

PCL Construction Services, Inc.
Project No. 5200185

Act ID	Description	Rem Dur	% Comp	Early Start	Early Finish	2004												2005												2006												2007											
						A	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M													
P3, Susp Slab Pour #1																																																					
P3-1450	P3: Milestone Start Decks (Mtl Delivery)	0	100	21JUN05 A		▲ P3: Milestone Start Decks (Mtl Delivery)																																															
P3-1410	P3, Pour 1: Form Susp Slab & Beam	0	100	22JUN05 A	27JUN05 A	■ P3, Pour 1: Form Susp Slab & Beam																																															
P3-1420	P3, Pour 1: Install Rebar/PT	0	100	28JUN05 A	29JUN05 A	P3, Pour 1: Install Rebar/PT																																															
P3-1425	P3, Pour 1: Place/Finish Slab & Beams	0	100	30JUN05 A	30JUN05 A	P3, Pour 1: Place/Finish Slab & Beams																																															
P3-1460	P3: Milestone 1st Deck Pour	0	100		30JUN05 A	▲ P3: Milestone 1st Deck Pour																																															
P3-1480	P3, Pour 1: Concrete Cure	0	100	01JUL05 A	03JUL05 A	P3, Pour 1: Concrete Cure																																															
P3-1475	P3, Pour 1: Early Strip	0	100	01JUL05 A	05JUL05 A	■ P3, Pour 1: Early Strip																																															
P3-1485	P3, Pour 1: Post Tension	0	100	05JUL05 A	05JUL05 A	P3, Pour 1: Post Tension																																															
P3-1520	P3, Pour 1: Strip Slabs & Beams Complete	0	100	05JUL05 A	08JUL05 A	■ P3, Pour 1: Strip Slabs & Beams Complete																																															
P3-1530	P3, Pour 1: Install Reshore	0	100	11JUL05 A	11JUL05 A	P3, Pour 1: Install Reshore																																															
P3-1540	P3, Pour 1: R/F/P Columns	0	100	11JUL05 A	15JUL05 A	■ P3, Pour 1: R/F/P Columns																																															
P3, Susp Slab Pour #2																																																					
P3-1411	P3, Pour 2: Form Susp Slab & Beam	0	100	28JUN05 A	07JUL05 A	■ P3, Pour 2: Form Susp Slab & Beam																																															
P3-1421	P3, Pour 2: Install Rebar/PT	0	100	06JUL05 A	11JUL05 A	■ P3, Pour 2: Install Rebar/PT																																															
P3-1426	P3, Pour 2: Place/Finish Slab & Beams	0	100	12JUL05 A	12JUL05 A	P3, Pour 2: Place/Finish Slab & Beams																																															
P3-1476	P3, Pour 2: Early Strip	0	100	13JUL05 A	14JUL05 A	P3, Pour 2: Early Strip																																															
P3-1481	P3, Pour 2: Concrete Cure	0	100	13JUL05 A	15JUL05 A	P3, Pour 2: Concrete Cure																																															
P3-1486	P3, Pour 2: Post Tension	0	100	14JUL05 A	15JUL05 A	P3, Pour 2: Post Tension																																															
P3-1521	P3, Pour 2: Strip Slabs & Beams Complete	0	100	18JUL05 A	21JUL05 A	■ P3, Pour 2: Strip Slabs & Beams Complete																																															
P3-1541	P3, Pour 2: R/F/P Columns	0	100	19JUL05 A	22JUL05 A	■ P3, Pour 2: R/F/P Columns																																															
P3-1531	P3, Pour 2: Install Reshore	0	100	25JUL05 A	25JUL05 A	P3, Pour 2: Install Reshore																																															
P3, Susp Deck Pour #3																																																					
P3-1451	P4; SOG 3: IMPACT Methane Sump Change	0	100		01JUL05 A	▲ P4; SOG 3: IMPACT Methane Sump Change																																															
P3-1412	P3, Pour 3: Form Susp Slab & Beam	0	100	06JUL05 A	12JUL05 A	■ P3, Pour 3: Form Susp Slab & Beam																																															
P3-1422	P3, Pour 3: Install Rebar/PT	0	100	13JUL05 A	18JUL05 A	■ P3, Pour 3: Install Rebar/PT																																															
P3-1427	P3, Pour 3: Place/Finish Slab & Beams	0	100	19JUL05 A	19JUL05 A	P3, Pour 3: Place/Finish Slab & Beams																																															
P3-1482	P3, Pour 3: Concrete Cure	0	100	19JUL05 A	21JUL05 A	P3, Pour 3: Concrete Cure																																															
P3-1477	P3, Pour 3: Early Strip	0	100	20JUL05 A	21JUL05 A	P3, Pour 3: Early Strip																																															
P3-1487	P3, Pour 3: Post Tension	0	100	22JUL05 A	22JUL05 A	P3, Pour 3: Post Tension																																															
P3-1442	P3: Milestone Decks Complete	0	100		22JUL05 A	▲ P3: Milestone Decks Complete																																															
P3-1522	P3, Pour 3: Strip Slabs & Beams Complete	0	100	25JUL05 A	28JUL05 A	■ P3, Pour 3: Strip Slabs & Beams Complete																																															
P3-1542	P3, Pour 3: R/F/P Columns	0	100	27JUL05 A	02AUG05 A	■ P3, Pour 3: R/F/P Columns																																															
P3-1532	P3, Pour 3: Install Reshore	0	100	29JUL05 A	29JUL05 A	P3, Pour 3: Install Reshore																																															
Parking Level 2																																																					
General Items																																																					
P2-1500	P2: Summary Deck, Ramps, Columns, Walls	0 *	100	15JUL05 A	16SEP05 A	■ P2: Summary Deck, Ramps, Columns, Walls																																															
P2-1510	P2: Pour Delay Strips	0	100	03OCT05 A	17OCT05 A	■ P2: Pour Delay Strips																																															
P2, Susp Deck Pour #4																																																					
P2-1410	P2, Pour 4: Form Susp Slab & Beam	0	100	15JUL05 A	22JUL05 A	■ P2, Pour 4: Form Susp Slab & Beam																																															
P2-1520	P2: Milestone Start Decks	0	100	15JUL05 A		▲ P2: Milestone Start Decks																																															

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	Progress bar
	Critical bar
	Summary bar
	Start milestone point
	Finish milestone point

Fox Studios Office Building 103
As-Built Schedule
November 2006

PCL Construction Services, Inc.
Project No. 5200185

Act ID	Description	Rem Dur	% Comp	Early Start	Early Finish	2004					2005					2006					2007																					
						A	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
Plaza																																										
General Items																																										
PL-1800	Summary-Plaza Deck	0 *	100	30SEP05 A	20DEC05 A																						Summary-Plaza Deck															
PL-1850	Reshore Plaza Deck For Manlift	0	100	29NOV05 A	02DEC05 A																						Reshore Plaza Deck For Manlift															
PL-1860	Plaza: Pour Delay Strips	0	100	29DEC05 A	05JAN06 A																						Plaza: Pour Delay Strips															
Plaza Lvl, Susp Deck Pour #16																																										
PL-1410	Plaza, Pour 16: Form Susp Slab & Beam	0	100	30SEP05 A	10OCT05 A																						Plaza, Pour 16: Form Susp Slab & Beam															
PL-1490	Plaza: Milestone Start Decks	0	100	30SEP05 A																							Plaza: Milestone Start Decks															
PL-1420	Plaza, Pour 16: Install Rebar/PT	0	100	07OCT05 A	19OCT05 A																						Plaza, Pour 16: Install Rebar/PT															
PL-1430	Plaza, Pour 16: Install Hung Forms, Embeds	0	100	12OCT05 A	19OCT05 A																						Plaza, Pour 16: Install Hung Forms, Embeds															
PL-1440	Plaza, Pour 16: Place/Finish Slab & Beams	0	100	20OCT05 A	20OCT05 A																						Plaza, Pour 16: Place/Finish Slab & Beams															
PL-1450	Plaza, Pour 16: Concrete Cure	0	100	21OCT05 A	23OCT05 A																						Plaza, Pour 16: Concrete Cure															
PL-1460	Plaza, Pour 16: Early Strip	0	100	21OCT05 A	24OCT05 A																						Plaza, Pour 16: Early Strip															
PL-1470	Plaza, Pour 16: Post Tension	0	100	22OCT05 A	24OCT05 A																						Plaza, Pour 16: Post Tension															
PL-1480	Plaza, Pour 16: Strip Slabs & Beams Complete	0	100	24OCT05 A	31OCT05 A																						Plaza, Pour 16: Strip Slabs & Beams Complete															
Plaza Lvl, Susp Deck Pour #17																																										
PL-1411	Plaza, Pour 17: Form Susp Slab & Beam	0	100	10OCT05 A	19OCT05 A																						Plaza, Pour 17: Form Susp Slab & Beam															
PL-1421	Plaza, Pour 17: Install Rebar/PT	0	100	19OCT05 A	25OCT05 A																						Plaza, Pour 17: Install Rebar/PT															
PL-1431	Plaza, Pour 17: Install Hung Forms, Embeds	0	100	21OCT05 A	26OCT05 A																						Plaza, Pour 17: Install Hung Forms, Embeds															
PL-1441	Plaza, Pour 17: Place/Finish Slab & Beams	0	100	27OCT05 A	27OCT05 A																						Plaza, Pour 17: Place/Finish Slab & Beams															
PL-1451	Plaza, Pour 17: Concrete Cure	0	100	28OCT05 A	30OCT05 A																						Plaza, Pour 17: Concrete Cure															
PL-1461	Plaza, Pour 17: Early Strip	0	100	28OCT05 A	31OCT05 A																						Plaza, Pour 17: Early Strip															
PL-1471	Plaza, Pour 17: Post Tension	0	100	29OCT05 A	29OCT05 A																						Plaza, Pour 17: Post Tension															
PL-1481	Plaza, Pour 17: Strip Slabs & Beams Complete	0	100	31OCT05 A	08NOV05 A																						Plaza, Pour 17: Strip Slabs & Beams Complete															
Plaza Lvl, Susp Deck Pour #18																																										
PL-1412	Plaza, Pour 18: Form Susp Slab & Beam	0	100	20OCT05 A	31OCT05 A																						Plaza, Pour 18: Form Susp Slab & Beam															
PL-1422	Plaza, Pour 18: Install Rebar/PT	0	100	28OCT05 A	03NOV05 A																						Plaza, Pour 18: Install Rebar/PT															
PL-1432	Plaza, Pour 18: Install Hung Forms, Embeds	0	100	02NOV05 A	07NOV05 A																						Plaza, Pour 18: Install Hung Forms, Embeds															
PL-1442	Plaza, Pour 18: Place/Finish Slab & Beams	0	100	07NOV05 A	07NOV05 A																						Plaza, Pour 18: Place/Finish Slab & Beams															
PL-1462	Plaza, Pour 18: Early Strip	0	100	08NOV05 A	09NOV05 A																						Plaza, Pour 18: Early Strip															
PL-1452	Plaza, Pour 18: Concrete Cure	0	100	08NOV05 A	10NOV05 A																						Plaza, Pour 18: Concrete Cure															
PL-1472	Plaza, Pour 18: Post Tension	0	100	10NOV05 A	10NOV05 A																						Plaza, Pour 18: Post Tension															
PL-1482	Plaza, Pour 18: Strip Slabs & Beams Complete	0	100	14NOV05 A	22NOV05 A																						Plaza, Pour 18: Strip Slabs & Beams Complete															
Plaza Lvl, Susp Deck Pour #19																																										
PL-1413	Plaza, Pour 19: Form Susp Slab & Beam	0	100	28OCT05 A	04NOV05 A																						Plaza, Pour 19: Form Susp Slab & Beam															
PL-1423	Plaza, Pour 19: Install Rebar/PT	0	100	04NOV05 A	17NOV05 A																						Plaza, Pour 19: Install Rebar/PT															
PL-1433	Plaza, Pour 19: Install Hung Forms, Embeds	0	100	09NOV05 A	18NOV05 A																						Plaza, Pour 19: Install Hung Forms, Embeds															
PL-1443	Plaza, Pour 19: Place/Finish Slab & Beams	0	100	21NOV05 A	21NOV05 A																						Plaza, Pour 19: Place/Finish Slab & Beams															
PL-1463	Plaza, Pour 19: Early Strip	0	100	22NOV05 A	23NOV05 A																						Plaza, Pour 19: Early Strip															
PL-1453	Plaza, Pour 19: Concrete Cure	0	100	22NOV05 A	26NOV05 A																						Plaza, Pour 19: Concrete Cure															
PL-1473	Plaza, Pour 19: Post Tension	0	100	23NOV05 A	28NOV05 A																						Plaza, Pour 19: Post Tension															

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	Progress bar
	Critical bar
	Summary bar
	Start milestone point
	Finish milestone point

Fox Studios Office Building 103
As-Built Schedule
November 2006

PCL Construction Services, Inc.
Project No. 5200185

TAB 5

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5. Site Logistics

The Fox Studios 103 Project is located on the corner of Pico and Ave of the Stars, bordered by the main entrance to Fox Studios and an existing office building. There are currently no nearby parking lots, no parking on Ave. of the Stars and very limited parking on Pico. The PCL trailer will be 60' X 30', the Plumber's, Concrete subcontractor's and Electrician's trailers will be 30' X 12'.

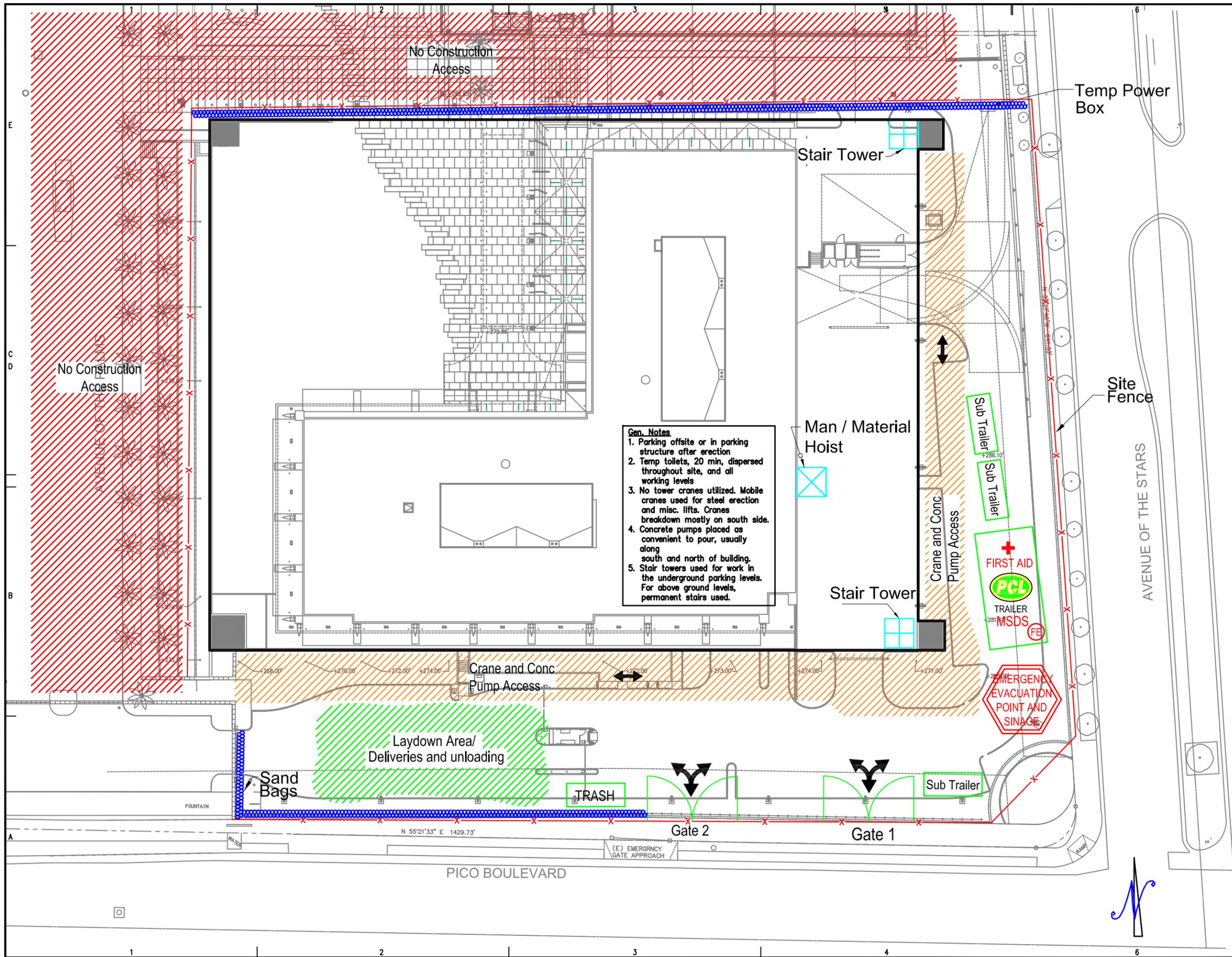
Site Plan

Use the full size drawing (C-1.01) to create your site logistics plan. Other drawings may be used if you determine them necessary to fully explain your plan. Your plan can add or omit items from the basic list below, as long as a valid reason is present and that your logic does not violate code requirements or jurisdictional limits. Ensure that the locations of all items listed below are coordinated with future work activities, so they do not impede construction progress. In addition, if your site utilization changes/evolves throughout the project, describe any such changes. Include the following without limiting to:

- Project Office location
- Parking
- Location of subcontractor offices
- Locations for temporary fences
- Location of access roads and gates (union and non-union)
- Project and required signage (location and what signs are needed)
- Location of temp services; Power, Trash, etc
- Temporary Toilet Locations for 200 workers
- Laydown areas
- Location and boom radius of crane(s)
- Personnel/material hoist location (at different times in the project if needed)
- Concrete Pumping locations
- Delivery locations for staging and unloading
- Stair towers, if used.
- Emergency evacuation location
- Any SWPPP (erosion control) necessary
- North Arrow
- Any other items that your team things should be on the plan

In addition to a graphical plan provide written narrative to further explain the site utilization plan prepared by your team. When site work is to take place, briefly explain any conflicts that might occur with locations of trailers, etc. and completing all of the landscaping and site work. Provide a brief explanation of how these conflicts will be coordinated and resolved. If there are no foreseen conflicts, briefly explain how the site utilization plan was coordinated with the final site work.

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Gen. Notes

1. Parking offsite or in parking structure after erection
2. Temp toilets, 20 min, dispersed throughout site, and all working levels
3. No tower cranes utilized. Mobile cranes used for steel erection and misc. lifts. Cranes breakdown mostly on south side.
4. Concrete pumps placed as convenient to pour, usually along south and north of building.
5. Stair towers used for work in the underground parking levels. For above ground levels, permanent stairs used.



FOX Office Building 103
 10201 W. Pico Blvd
 Los Angeles, California 90035
 Phone: 818-426-0939
 www.pcl.com

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CONSULTANTS:

OWNER:

REV	DATE	BY	DESCRIPTION

CHECKED BY: FOX 103 Site Logistics

SITE LOGISTICS PLAN

GC-1.3

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TAB 6

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6.) Cash Flow Analysis

As part of its financial analysis, the Owner needs to understand its cash flow requirements. As part of your submittal, prepare separate cash flow analyses for the Preconstruction and for the Construction phases of this project.

- Use the excel spreadsheet cash flow program to derive applicable cash flow projections.
- Completion of this exercise will require information from the budget exercises in section 3 and the schedule exercises in section 4.
- Use the Contractual Criteria for durations of each phase.
- Assume 10% retention for the each phase to be paid 60 days after completion.
- Assume billing on the 25th of the month and payments will be on the 25th of the following month.
- Assume a tolerance of Zero.

Deliverables for this exercise include;

- Cash Flow Worksheet
- Summary Cash Flow Graph
- Cash Flow Graph for each Project Phase

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CASH FLOW WORKSHEET V3.4

[Release Notes](#)

[Download Current Version](#)

[Need Help?](#)

Title 1 **Fox Office Building 103**
 Title 2 **Prepared by ??**
 Title 3 **Cash Flow Report**

Show Details: Graph: **TRUE** Actuals Data: **TRUE** Curve Data: **TRUE**

Number of Phases **2**

Retention % **10.0%**

Notes:

The more phases you add, the longer the program takes to produce the chart. For 10 phases, it should take approximately 90 seconds to finish.

Monthly Billing Day **25**
 i.e. 25th of the month

Using 0 in monthly billing day will give you the last day of each month.

Payment Due (Days) **30**

Use a new (clean) template for each new project or "what-if" analysis.

Amount of days after the Billing Date.

To add actual billings go to relevant phase and key in billings manually. Then click the

Tolerance (20 is recommended) **0**

HB Release (e.g. 45 days) **60**

HB Released by Phase

(If HB Released by Phase is left blank, default is No)

Phase **1** **2** **3** **4** **5** **6** **7** **8** **9** **10**

Contract (Phase) Value **\$ 233,566** **\$ 47,081,460**

Start Date (MM/DD/YYYY) **2/12/2009** **9/12/2009**

Completion Date **9/12/2009** **4/12/2011**

Initial Billing per S-Curve 4,168 443,495

Initial Billing Override **0** **0**

HB Release Date 11/25/2009 6/25/2011

(60 days after each phase and adjusted to the next billing day)

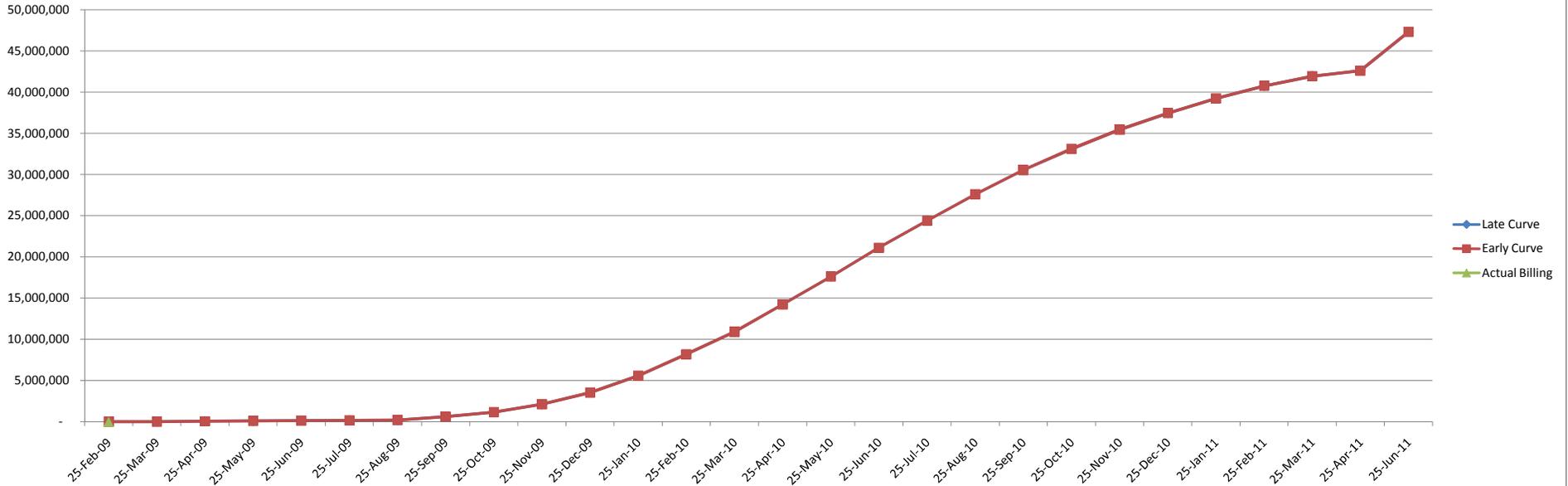
Program Modifications

- Version V2.01 Release Notes
- Version V2.10 Release Notes
- Version V2.11 Release Notes
- Version V2.12 Release Notes
- Version V2.13 Release Notes
- Version V3.0 Release Notes
- Version V3.1 Release Notes
- Version V3.2 Release Notes
- Version V3.3 Release Notes
- Version V3.4 Release Notes

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Fox Office Building 103 - Summary

Prepared by ??
Cash Flow Report



Total Project Period: February 12, 2009 To April 12, 2011

Total Project Value: \$47,315,026

Draw Date	Duration%	This Period			Cumulative			SpreadFactor	Late Curve		Early Curve		Actual Billing		Expected Payment		
		Gross Billing	Retention	Net Billing	Gross Billing	Retention	Net Billing		Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Date	Monthly	Cumulative
25-Feb-09	1.65	4,168	417	3,751	4,168	417	3,751	-	3,751	3,751	3,751	3,751	-	-	27-Mar-09	-	-
25-Mar-09	5.20	16,523	1,652	14,870	20,691	2,069	18,622	-	14,870	18,622	14,870	18,622	-	-	24-Apr-09	-	-
25-Apr-09	9.13	39,294	3,929	35,365	59,985	5,999	53,987	-	35,365	53,987	35,365	53,987	-	-	25-May-09	-	-
25-May-09	12.93	49,931	4,993	44,938	109,916	10,992	98,925	-	44,938	98,925	44,938	98,925	-	-	24-Jun-09	-	-
25-Jun-09	16.86	48,976	4,898	44,078	158,892	15,889	143,003	-	44,078	143,003	44,078	143,003	-	-	25-Jul-09	-	-
25-Jul-09	20.66	37,065	3,707	33,359	195,957	19,596	176,362	-	33,359	176,362	33,359	176,362	-	-	24-Aug-09	-	-
25-Aug-09	24.59	26,665	2,666	23,998	222,622	22,262	200,360	-	23,998	200,360	23,998	200,360	-	-	24-Sep-09	-	-
25-Sep-09	28.52	454,438	45,444	408,995	677,061	67,706	609,354	-	408,995	609,354	408,995	609,354	-	-	25-Oct-09	-	-
25-Oct-09	32.32	580,147	34,658	545,489	1,257,208	102,364	1,154,844	-	545,489	1,154,844	545,489	1,154,844	-	-	24-Nov-09	-	-
25-Nov-09	36.25	1,061,274	106,127	955,146	2,318,481	208,492	2,109,990	-	955,146	2,109,990	955,146	2,109,990	-	-	25-Dec-09	-	-
25-Dec-09	40.05	1,588,782	158,878	1,429,904	3,907,264	367,370	3,539,894	-	1,429,904	3,539,894	1,429,904	3,539,894	-	-	24-Jan-10	-	-
25-Jan-10	43.98	2,273,756	227,376	2,046,381	6,181,020	594,745	5,586,275	-	2,046,381	5,586,275	2,046,381	5,586,275	-	-	24-Feb-10	-	-
25-Feb-10	47.91	2,882,640	288,264	2,594,376	9,063,661	883,009	8,180,651	-	2,594,376	8,180,651	2,594,376	8,180,651	-	-	27-Mar-10	-	-
25-Mar-10	51.46	3,036,373	303,637	2,732,735	12,100,033	1,186,647	10,913,386	-	2,732,735	10,913,386	2,732,735	10,913,386	-	-	24-Apr-10	-	-
25-Apr-10	55.39	3,695,134	369,513	3,325,621	15,795,167	1,556,160	14,239,007	-	3,325,621	14,239,007	3,325,621	14,239,007	-	-	25-May-10	-	-
25-May-10	59.19	3,749,503	374,950	3,374,552	19,544,670	1,931,110	17,613,559	-	3,374,552	17,613,559	3,374,552	17,613,559	-	-	24-Jun-10	-	-
25-Jun-10	63.12	3,891,718	389,172	3,502,546	23,436,388	2,320,282	21,116,105	-	3,502,546	21,116,105	3,502,546	21,116,105	-	-	25-Jul-10	-	-
25-Jul-10	66.92	3,652,738	365,274	3,287,464	27,089,126	2,685,556	24,403,570	-	3,287,464	24,403,570	3,287,464	24,403,570	-	-	24-Aug-10	-	-
25-Aug-10	70.85	3,555,620	355,562	3,200,058	30,644,746	3,041,118	27,603,628	-	3,200,058	27,603,628	3,200,058	27,603,628	-	-	24-Sep-10	-	-
25-Sep-10	74.78	3,265,552	326,555	2,938,997	33,910,298	3,367,673	30,542,625	-	2,938,997	30,542,625	2,938,997	30,542,625	-	-	25-Oct-10	-	-
25-Oct-10	78.58	2,849,442	284,944	2,564,498	36,759,740	3,652,617	33,107,123	-	2,564,498	33,107,123	2,564,498	33,107,123	-	-	24-Nov-10	-	-
25-Nov-10	82.51	2,612,290	261,229	2,351,061	39,372,030	3,913,846	35,458,184	-	2,351,061	35,458,184	2,351,061	35,458,184	-	-	25-Dec-10	-	-

Total Project Period: February 12, 2009 To April 12, 2011

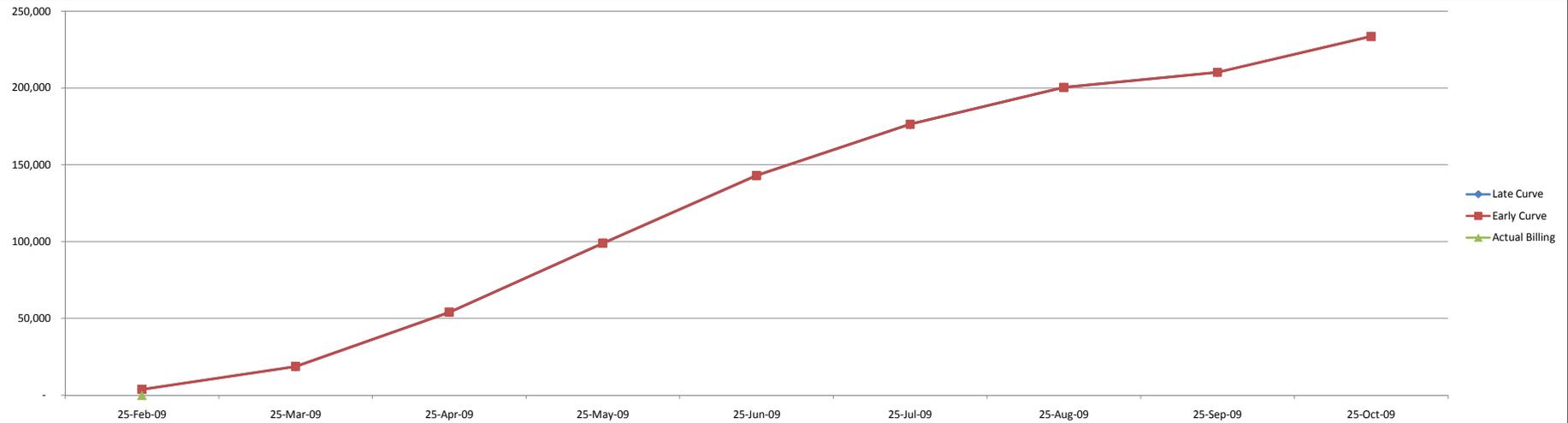
Total Project Value: \$47,315,026

Draw Date	Duration%	This Period			Cumulative			SpreadFactor	Late Curve		Early Curve		Actual Billing		Expected Payment		
		Gross Billing	Retention	Net Billing	Gross Billing	Retention	Net Billing		Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Date	Monthly	Cumulative
25-Dec-10	86.31	2,213,201	221,320	1,991,881	41,585,231	4,135,167	37,450,065	-	1,991,881	37,450,065	1,991,881	37,450,065	-	-	24-Jan-11	-	-
25-Jan-11	90.24	1,980,462	198,046	1,782,416	43,565,693	4,333,213	39,232,480	-	1,782,416	39,232,480	1,782,416	39,232,480	-	-	24-Feb-11	-	-
25-Feb-11	94.17	1,695,236	169,524	1,525,712	45,260,929	4,502,736	40,758,192	-	1,525,712	40,758,192	1,525,712	40,758,192	-	-	27-Mar-11	-	-
25-Mar-11	97.72	1,310,980	131,098	1,179,882	46,571,909	4,633,834	41,938,074	-	1,179,882	41,938,074	1,179,882	41,938,074	-	-	24-Apr-11	-	-
25-Apr-11	100.00	743,117	74,312	668,806	47,315,026	4,708,146	42,606,880	-	668,806	42,606,880	668,806	42,606,880	-	-	25-May-11	-	-
25-Jun-11	HB Release	-	(4,708,146)	4,708,146	47,315,026	-	47,315,026	-	-	47,315,026	-	47,315,026	-	-	25-Jul-11	-	-

Fox Office Building 103 - Phase 1

Prepared by ??

Cash Flow Report



Period: February 12, 2009 To September 12, 2009

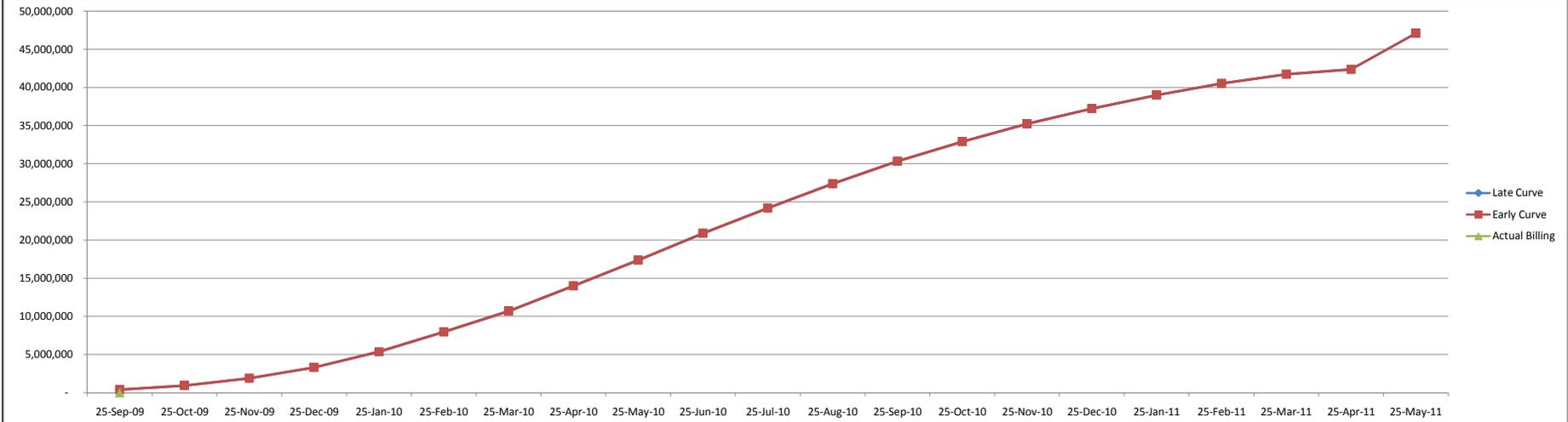
Value: \$233,566

Phase		This Period			Cumulative					Late Curve		Early Curve		Actual Billing		Expected Payment			
Draw Date	Duration%	Gross Billing	Retention	Net Billing	Calculated Gross	Adjusted Gross	Gross Billing	Retention	Net Billing	SpreadFactor	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Date	Monthly	Cumulative
25-Feb-09	6.13	4,168	417	3,751	4,168		4,168	417	3,751	-	3,751	3,751	3,751	3,751			27-Mar-09	0	-
25-Mar-09	19.34	16,523	1,652	14,870	20,691		20,691	2,069	18,622	-	14,870	18,622	14,870	18,622			24-Apr-09	0	-
25-Apr-09	33.96	39,294	3,929	35,365	59,985		59,985	5,999	53,987	-	35,365	53,987	35,365	53,987			25-May-09	0	-
25-May-09	48.11	49,931	4,993	44,938	109,916		109,916	10,992	98,925	-	44,938	98,925	44,938	98,925			24-Jun-09	0	-
25-Jun-09	62.74	48,976	4,898	44,078	158,892		158,892	15,889	143,003	-	44,078	143,003	44,078	143,003			25-Jul-09	0	-
25-Jul-09	76.89	37,065	3,707	33,359	195,957		195,957	19,596	176,362	-	33,359	176,362	33,359	176,362			24-Aug-09	0	-
25-Aug-09	91.51	26,665	2,666	23,998	222,622		222,622	22,262	200,360	-	23,998	200,360	23,998	200,360			24-Sep-09	0	-
25-Sep-09	100.00	10,944	1,094	9,849	233,566		233,566	23,357	210,209	-	9,849	210,209	9,849	210,209			25-Oct-09	0	-
25-Oct-09	HB Release	-	(23,357)	23,357	233,566		233,566	-	233,566	-		233,566		233,566			24-Nov-09	0	-

Fox Office Building 103 - Phase 2

Prepared by ??

Cash Flow Report



Period: September 12, 2009 To April 12, 2011

Value: \$47,081,460

Draw Date	Duration%	This Period			Cumulative			Late Curve		Early Curve		Actual Billing		Expected Payment				
		Gross Billing	Retention	Net Billing	Calculated Gross	Adjusted Gross	Gross Billing	Retention	Net Billing	SpreadFactor	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Date	Monthly
25-Sep-09	2.25	443,495	44,349	399,145	443,495		443,495	44,349	399,145	-	399,145	399,145	399,145		-	25-Oct-09	0	-
25-Oct-09	7.45	580,147	58,015	522,132	1,023,642		1,023,642	102,364	921,278	-	522,132	921,278	522,132		-	24-Nov-09	0	-
25-Nov-09	12.82	1,061,274	106,127	955,146	2,084,915		2,084,915	208,492	1,876,424	-	955,146	1,876,424	955,146		-	25-Dec-09	0	-
25-Dec-09	18.02	1,588,782	158,878	1,429,904	3,673,698		3,673,698	367,370	3,306,328	-	1,429,904	3,306,328	1,429,904		-	24-Jan-10	0	-
25-Jan-10	23.40	2,273,756	227,376	2,046,381	5,947,454		5,947,454	594,745	5,352,709	-	2,046,381	5,352,709	2,046,381		-	24-Feb-10	0	-
25-Feb-10	28.77	2,882,640	288,264	2,594,376	8,830,095		8,830,095	883,009	7,947,085	-	2,594,376	7,947,085	2,594,376		-	27-Mar-10	0	-
25-Mar-10	33.62	3,036,373	303,637	2,732,735	11,866,467		11,866,467	1,186,647	10,679,820	-	2,732,735	10,679,820	2,732,735		-	24-Apr-10	0	-
25-Apr-10	38.99	3,695,134	369,513	3,325,621	15,561,601		15,561,601	1,556,160	14,005,441	-	3,325,621	14,005,441	3,325,621		-	25-May-10	0	-
25-May-10	44.19	3,749,503	374,950	3,374,552	19,311,104		19,311,104	1,931,110	17,379,993	-	3,374,552	17,379,993	3,374,552		-	24-Jun-10	0	-
25-Jun-10	49.57	3,891,718	389,172	3,502,546	23,202,822		23,202,822	2,320,282	20,882,539	-	3,502,546	20,882,539	3,502,546		-	25-Jul-10	0	-
25-Jul-10	54.77	3,652,738	365,274	3,287,464	26,855,560		26,855,560	2,685,556	24,170,004	-	3,287,464	24,170,004	3,287,464		-	24-Aug-10	0	-
25-Aug-10	60.14	3,555,620	355,562	3,200,058	30,411,180		30,411,180	3,041,118	27,370,062	-	3,200,058	27,370,062	3,200,058		-	24-Sep-10	0	-
25-Sep-10	65.51	3,265,552	326,555	2,938,997	33,676,732		33,676,732	3,367,673	30,309,059	-	2,938,997	30,309,059	2,938,997		-	25-Oct-10	0	-
25-Oct-10	70.71	2,849,442	284,944	2,564,498	36,526,174		36,526,174	3,652,617	32,873,557	-	2,564,498	32,873,557	2,564,498		-	24-Nov-10	0	-
25-Nov-10	76.08	2,612,290	261,229	2,351,061	39,138,464		39,138,464	3,913,846	35,224,618	-	2,351,061	35,224,618	2,351,061		-	25-Dec-10	0	-
25-Dec-10	81.28	2,213,201	221,320	1,991,881	41,351,665		41,351,665	4,135,167	37,216,499	-	1,991,881	37,216,499	1,991,881		-	24-Jan-11	0	-
25-Jan-11	86.66	1,980,462	198,046	1,782,416	43,332,127		43,332,127	4,333,213	38,998,914	-	1,782,416	38,998,914	1,782,416		-	24-Feb-11	0	-
25-Feb-11	92.03	1,695,236	169,524	1,525,712	45,027,363		45,027,363	4,502,736	40,524,626	-	1,525,712	40,524,626	1,525,712		-	27-Mar-11	0	-
25-Mar-11	96.88	1,310,980	131,098	1,179,882	46,338,343		46,338,343	4,633,834	41,704,508	-	1,179,882	41,704,508	1,179,882		-	24-Apr-11	0	-
25-Apr-11	100.00	743,117	74,312	668,806	47,081,460		47,081,460	4,708,146	42,373,314	-	668,806	42,373,314	668,806		-	25-May-11	0	-
25-May-11	HB Release	-	(4,708,146)	4,708,146	47,081,460		47,081,460	-	47,081,460	-	-	47,081,460	47,081,460		-	24-Jun-11	0	-

TAB 7

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7. Mechanical Problem for ASC Competition

The new Fox Office Building was intended to be served by the campus chilled water plant. The existing central plant currently serves about 50% of the campus buildings and is running at full capacity. An expansion of the existing central plant is in design. This plant expansion would not only serve the new office building, but other campus buildings that are not currently connected to the plant. Construction completion was planned to coincide with the completion of the new office building.

Due to the current economic downturn, the Fox management has is considering cancelling the \$35 million central plant expansion project. This creates a major problem of how to provide chilled water for the air conditioning of the new office building.

At the P4 level of the building there is currently a storage area that just happens to be large enough to house the chillers and their associated pumps and the roof has an area that can accommodate the cooling towers. A route will need to be established for the condenser water piping from the P4 level mechanical central plant to the roof.

As the general contractor, the owner (Fox) has requested that you provide a rough order of magnitude (ROM) budget to add a chilled water plant to your building. Do not incorporate this exercise into your answers for any other section of the Preconstruction problem. This is just one of several potential solution being considered by the Owner.

In order to establish your ROM budget here are the parameters:

- Total capacity of the chilled water plant needs to be calculated. The coil data for the built-up air handling units and the fan coil units have the total cooling capacities specified on the mechanical schedule. To these loads add 10 tons per office level for miscellaneous tenant cooling loads.

$$\text{MBH} = 1000 \text{ BTU/Hr}$$

$$1 \text{ ton} = 12,000 \text{ BTU}$$

rule-of-thumb check approximately 400 cfm / ton

- There will be 2 chillers, each sized at 60% of the system total load. Note that chillers are up-sized so that should a chiller be down for service, the capacity of one chiller could maintain air conditioning during normal outdoor conditions. The budgetary installed cost of a chiller is \$280 per ton.
- Each chiller will have a chilled water pump and a condenser water pump. Capacities of the pumps are determined by the following equation:

$$\text{BTU} = \text{GPM} \times 500 \times \text{differential temperature}$$

chilled water system 16°F temperature differential (44°F > 60°F)

condenser water system 10°F temperature differential (95°F > 85°F)

The budgetary installed cost of a pump is \$9.00 per gpm.

- Cooling towers have a budgetary installed cost of \$126 per ton.

- Budgetary piping costs for the chilled water plant are \$326 per ton. This is based upon a close-coupled plant; meaning that the cooling towers are located adjacent to the chillers. Since the cooling towers are located on the roof, condenser water piping costs (supply and return) from the P4 level central plant to the roof will need to be added.

6" dia pipe	220>700 gpm	\$82 per LF
8" dia pipe	700>1,200 gpm	\$108 per LF
10" dia pipe	1,200>2,000 gpm	\$146 per LF

In addition the chilled water piping will have to be extended from the P1 level to the P4 level central plant.

- The other sub trades have provided the following budgets for the plant addition:

Electrical	\$220,000
Architectural / Structural	\$85,000
Temperature Controls / BAS	\$125,000
Crane & Rigging	\$35,000
Fire Protection	\$15,000

- The scheduled completion of the project will have to be extended by 4 months due to the addition of the chilled water plant (design and permitting). General Condition's costs are at \$110,000 per month.
- Fee on top of all costs for this potential has been negotiated with the owner at 5%.
- You will probably want to look at sheets M-.02, M-1.04, A2.10, A-2.11, A-3.01

Deliverables;

- Calculations for cooling loads, equipment selection, pipe sizing/quantities
- ROM budget estimate for this potential change
- Sketch of proposed roof top equipment and piping
- Sketch of proposed P4 chiller plant equipment and piping risers
- Sketch of proposed roof top equipment in building elevation



SUBJECT: SOLUTION - MECH PROBLEM FOR ASL COMPETITION	DATE:	BY:	PAGE: 2 of 2
--	-------	-----	------------------------

ESTIMATE

2 EACH	360 TON CHILLERS @ \$280/T	\$201,600
2 EACH	360 TON COOLING TOWERS @ \$126/T	90,720
2 EACH	540 GPM CHW PUMPS @ \$9/GPM	9,720
2 EACH	864 GPM CDW PUMPS @ \$9/GPM	15,552
60 LF	8" Ø CHW PIPING @ \$108/LF	6,480
220 LF	10" Ø CDW PIPING @ \$146/LF	32,120
720 TONS	PLANT PIPING @ \$326/TON	\$259,200
< 220 LF >	8" Ø CHW PIPING @ \$108/LF	< \$23,760 >

SUBCONTRACTS

ELECTRICAL	220,000
ARCHITECTURAL/STRUCTURAL	85,000
TEMPERATURE CONTROLS/BAS	125,000
CRANE + RIGGING	35,000
FIRE PROTECTION	15,000
INSULATION - PIPING	30,000

COST SUB-TOTAL \$1,101,632

GENERAL CONDITIONS 4 MONTHS @ \$110,000/MONTH 440,000
 FEE @ 5% OF COST 55,082

TOTAL GMP **\$1,596,714**

6,336 MBH = 528 TONS

DUCT SIZE SCHEDULE

LOW VELOCITY DUCT SYSTEMS SUPPLY AND EXHAUST

CFM RANGE	ROUND DUCT DIA. OR EQUIVALENT RECTANGULAR DUCT	CFM RANGE	ROUND DUCT DIA. OR EQUIVALENT RECTANGULAR DUCT	CFM RANGE	ROUND DUCT DIA. OR EQUIVALENT RECTANGULAR DUCT	CFM RANGE	ROUND DUCT DIA. OR EQUIVALENT RECTANGULAR DUCT
UP TO 80	6" DIA.	350 - 450	11" DIA.	1100 - 1400	16" DIA.	4100 - 5000	25" DIA.
80 - 120	7" DIA.	450 - 600	12" DIA.	1400 - 1800	18" DIA.	5000 - 6200	28" DIA.
120 - 180	8" DIA.	600 - 750	13" DIA.	1800 - 2500	20" DIA.	6200 - 7500	30" DIA.
180 - 270	9" DIA.	750 - 900	14" DIA.	2500 - 3300	22" DIA.		
270 - 350	10" DIA.	900 - 1100	15" DIA.	3300 - 4100	24" DIA.		

WATER COILS

SYMBOL	MAKE	MODEL	SIZE (QTY.)	CFM (QTY.)	FACE AREA (SQ. FT.)	FACE VELOCITY (FPM)	CAPACITY (BTU/H)		AIR		WATER		ROWS	FINS	DRG.	WORKING PRESS.	OPERATING WEIGHT	SERVICE	REMARKS					
							TOTAL	SENSIBLE	DB	WB	DB	WB												
WC 1	CARRIER	SERIES 2500	96" x 48" (8)	18,857 (8)	31.87 (8)	528	3188.0	2820.44	78.0	64.5	54.5	53.0	44	80		70.4 EA.	3.5"	8	11	80	300	-	AHU-1	WITH PHENOLIC COATING
WC 2	CARRIER	SERIES 2500	96" x 48" (8)	18,857 (8)	31.87 (8)	528	3188.0	2820.44	78.5	64.5	54.5	53.0	44	80		70.4 EA.	3.5"	8	11	80	300	-	AHU-1	WITH PHENOLIC COATING

1. PROVIDE SEPARATE COST TO PROVIDE 304 STAINLESS STEEL COIL CASINGS (FRAMES) AND DRAIN PANS.

MISCELLANEOUS EQUIPMENT

SYMBOL	MAKE	MODEL/TYPE	CAPACITY	ELECTRICAL		CFM	SIZE			OPERATING HEIGHT	SERVING	REMARKS	
				VOLTAGE	W.A. INDOOR		WIDTH	HEIGHT	DEPTH				
AC 1	BARB	WA442-C	4-TON	480/3/80	17	20	1850	42"	85"	23"	500	ELEVATOR MACHINE RM. FLOOR	SEE NOTES BELOW
AC 2	BARB	WA442-C	3-TON	460/3/80	14	20	1650	42"	85"	23"	500	ELEVATOR MACHINE RM. FLOOR	SEE NOTES BELOW
AC 3	BARB	WA502-C	5-TON	460/3/80	27	30	1850	42"	85"	23"	500	ELEVATOR MACHINE RM. ROOF	SEE NOTES BELOW

GENERAL NOTES:
1. PROVIDE FACTORY INSTALLED LOW AMBIENT CONTROL ON ALL UNITS.

AIR FILTERS

SYMBOL	MAKE	MODEL	EFFICIENCY	SIZE (WxHxD)	QUANTITY	CFM	INITIAL RESISTANCE	FINAL RESISTANCE	OPERATING WEIGHT	VELOCITY F.P.M.	REMARKS
FA 1-2	FARR	30 / 30	35%	24" x 24" x 2"	48	2000 EA. FILTER	.30" @ 2000 CFM	.80"	1 LB. EA.	MAX. 500	CONTRACTOR SHALL BUILD IN PLACE FILTER SYSTEM WITH FARR FACTORY TYPE B HOLDING FRAMES & CLIPS
FA 2-1	FARR	DURA-FIL V BANK MESH-PLATE	85%	24" x 24" x 2"	48	2000 EA. FILTER	.37" @ 2000 CFM	1.00"	FRAME W/ 6 LBS FILTER = 15 LBS (EACH)	MAX. 500	CONTRACTOR SHALL BUILD IN PLACE FILTER SYSTEM WITH FARR FACTORY TYPE B HOLDING FRAMES & CLIPS
FA 2-2	FARR	DURA-FIL V BANK MESH-PLATE	85%	24" x 24" x 2"	48	2000 EA. FILTER	.37" @ 2000 CFM	1.00"	8 LBS FRAME 15 LBS FILTER (EACH)	MAX. 500	CONTRACTOR SHALL BUILD IN PLACE FILTER SYSTEM WITH FARR FACTORY TYPE B HOLDING FRAMES & CLIPS

VAV ZONE BOX SCHEDULE

ZONE NO.	BOX SIZE (WxDxH)	PRIMARY AIR		SECONDARY AIR CFM	FAN HP	HEATER KW	ELECTRICAL VOLTAGE	STAGE	REMARKS
		MAX.	MIN.						
1-1	1418	2000	200	800	1/2	5.00	277-1ph-60hz	2	SEE NOTES BELOW
1-2	1411	1800	180	720	1/4	3.0	277-1ph-60hz	2	SEE NOTES BELOW
1-3	0808	800	70	240	1/8	1.75	277-1ph-60hz	2	SEE NOTES BELOW
1-4	1411	1500	150	720	1/4	5.0	277-1ph-60hz	2	SEE NOTES BELOW
2-1	1211	900	150	-	-	-	-	-	SEE NOTES BELOW
3-1	1411	900	150	-	-	-	-	-	SEE NOTES BELOW
4-1	1006	900	150	-	-	-	-	-	SEE NOTES BELOW
5-1	1418	900	150	-	-	-	-	-	SEE NOTES BELOW

NOTES:
1. SEE SHT. M-0.01 FOR MASTER AIR TERMINAL UNIT SCHEDULE AND FAN POWER AIR DIAGRAM.
2. ALL FAN POWER BOXES SHALL BE EQUIPPED WITH FACTORY SCR SPEED CONTROLLERS, 3 TAP MOTORS AND FILTER RACK W/ FILTER.
3. ALL FAN POWER BOXES SHALL BE EQUIPPED WITH 2 STEP HEATERS.
4. ALL FAN POWER BOXES SHALL BE HAVE SINGLE POINT POWER.

SUPPLY/EXHAUST/RELIEF FANS

SYMBOL	MAKE	MODEL/TYPE	PERFORMANCE DATA			OUTLET VEL. FPM	MOTOR DATA			EMERG. POWER	OPER. WEIGHT LBS.	SERVICE	VIBRATION ISOLATION		REMARKS				
			CFM	S.P. (IN)	RPM		DRIVE	BHP	HP				VOLTAGE			TYPE	STATIC DEF.		
													WVTS	1/2					
GF 1	WOODS	VANE-AXIAL 180J71A	100,000	4.5"	1185	-	DIRECT	110	125	480	3	80	NO	6,825	1	AHU-1 SUPPLY	MS	2"	ADJUSTABLE PITCH VANES WITH VFD
GF 2	WOODS	VANE-AXIAL 180J71A	100,000	4.5"	1185	-	DIRECT	110	125	480	3	80	NO	6,825	1	AHU-2 SUPPLY	MS	2"	ADJUSTABLE PITCH VANES WITH VFD
RF 1	WOODS	VANE-AXIAL 180J80T	90,000	1.5"	575	-	DIRECT	41.2	50	480	3	80	NO	5,824	1	AHU-1 RETURN	MS	2"	ADJUSTABLE PITCH VANES WITH VFD
RF 2	WOODS	VANE-AXIAL 180J80T	90,000	1.5"	575	-	DIRECT	41.2	50	480	3	80	NO	5,824	1	AHU-2 RETURN	MS	2"	ADJUSTABLE PITCH VANES WITH VFD
GSP 1	WOODS	VANE-AXIAL 224J71A	184,000	2.50"	875	-	DIRECT	185	150	480	3	80	NO	11,890	1	GARAGE SUPPLY	MS	2"	ADJUSTABLE PITCH VANES EXTERNAL VERTICAL MOUNTING BRACKETS
GSP 2	WOODS	VANE-AXIAL 224J71A	184,000	2.50"	875	-	DIRECT	185	150	480	3	80	NO	8,125	1	GARAGE SUPPLY	MS	2"	ADJUSTABLE PITCH VANES EXTERNAL VERTICAL MOUNTING BRACKETS
GSP 3	WOODS	VANE-AXIAL 125J80T	36,100	2.50"	1170	-	DIRECT	28.98	30	480	3	80	NO	1,572	1	GARAGE SUPPLY	MS	2"	ADJUSTABLE PITCH VANES EXTERNAL VERTICAL MOUNTING BRACKETS
GEF 1	WOODS	VANE-AXIAL 224J71A	182,000	2.50"	875	-	DIRECT	185	150	480	3	80	NO	11,890	1	GARAGE EXHAUST	MS	2"	ADJUSTABLE PITCH VANES EXTERNAL VERTICAL MOUNTING BRACKETS
GEF 2	WOODS	VANE-AXIAL 224J71A	214,100	2.50"	875	-	DIRECT	185	200	480	3	80	NO	12,973	1	GARAGE EXHAUST	MS	2"	ADJUSTABLE PITCH VANES EXTERNAL VERTICAL MOUNTING BRACKETS
TEF 1	COOK	ROOF FAN ACE-B-370	5,000	0.825"	600	-	BELT	1.0	1.5	480	3	80	NO	800	1	TOILET EXHAUST	MS	1"	MOTORIZED BACKDRAFT DAMPER WITH FACTORY SOUND CURB
TEF 2	COOK	ROOF FAN ACE-B-370	5,000	0.825"	600	-	BELT	1.0	1.5	480	3	80	NO	500	1	TOILET EXHAUST	MS	1"	MOTORIZED BACKDRAFT DAMPER WITH FACTORY SOUND CURB

NOTES:
1. PROVIDE DUCT TYPE SMOKE DETECTOR AT INLET OF ALL FANS.
2. PROVIDE STANDARD FACTORY ROOF CURBS FOR TEF-1 AND TEF-1.
3. ALL VED DRIVES BY THE AIR STREAM OR IN THE GARAGE FAN 1 ROOMS SHALL REQUIRE NEMA 12 ENCLOSURES.
4. PROVIDE ISOLATION BASE RAILS, MOTOR MOUNTING SLIDE PLATES AND MASON (HEIGHT SAVING) STEEL SPRING VIBRATION ISOLATORS.
5. FAN WEIGHTS INCLUDE COMPLETE FAN ASSEMBLIES INCLUDING FANS, MOTORS, INLET BELLS & SCREENS, DISCHARGE CONES, SUPPORT LEGS AND COMPANION FLANGES.
6. PROVIDE VED'S FOR: GSF-1, GSF-2, GSF-3, GEF-1 & GEF-2. DRIVES SHALL BE ABIL. SERIES A1800 OR EQUAL W/ FULL BYPASS AND WITH NEMA 12 ENCLOSURES. FAN SPEED SHALL BE CONTROLLED BY GARAGE C.E. MONITORING SYSTEM.
7. ALL MOTORS WITH VFD'S SHALL BE INSTALLED WITH SHAFT GROUNDING KITS.
8. PROVIDE WEATHER PROOF FAN HOUSINGS & MOTORS FOR GARAGE FANS GSF-1, GSF-2, GEF-1 & GEF-2.
9. GARAGE FANS GSF-1, GSF-2, GEF-1 & GEF-2 SHALL HAVE HOT DIPPER GALVANIZED CASING FINISH, SPILT CASE DESIGN, GUIDE VANES, ADJUSTABLE PITCH IMPELLERS, INVERTER DUTY MOTORS, FAN BARREL ACCESS DOORS, EXTENDED GREASE LINES, VIBRATION CUT OUT SWITCHES, FACTORY MOUNTING LEGS AND FACTORY WALE BELLS WITH VORTEX BREAKERS AND SCREENS.
10. GARAGE FAN GSF-3 SHALL BE HAVE ENAMEL PAINT FINISH, GUIDE VANES, ADJUSTABLE PITCH IMPELLERS, INVERTER DUTY MOTOR, FAN BARREL ACCESS DOOR, EXTENDED GREASE LINES, VIBRATION CUT OUT SWITCH, FACTORY MOUNTING LEGS AND FACTORY WALE BELL AND SCREENS.
11. GSF-3 TO RUN continuously at low speed @ 7000 RPM.

FAN COIL UNITS

SYMBOL	MAKE & SIZE	ARRANGEMENT	SERVICE	FAN DATA				CHILLED WATER COIL						FILTERS		TOTAL OPER. WEIGHT	WATER WORKING PRESS. PSIG	VIB. ISOL.	REMARKS							
				CAPACITY (CFM)	TOTAL (INCH) L.S.P.	RPM	MOTOR DATA	FACE VEL. FPM	AIR SIDE			WATER SIDE			TYPE					NUMBER						
									ENT. °F	LVG. °F	MAX. P.D. (IN.)	ENT. L/G	CPM	MAX. P.D. (FT.)							TOTAL	SENSIBLE				
				DB	WB	DB	WB	DB	WB																	
FC 1-1	CARRIER 42BH-008	HORIZONTAL FAN COIL	ELECT. & L.D.F. ROOMS	900	0.50	1180	1/2	120-1-80	500	78	85.5	58.8	55.9	.8	45	80	4.4	2.1	28,500	20,800	1"	FARR 30/30	180	250 PSIG	INTERNAL	SEE NOTES BELOW
FC 1-3	CARRIER 42BHW-018	HORIZONTAL FAN COIL	FIRST FLOOR ELECTRICAL RMS	1700	0.50	1180	3/4	480-3-80	500	78	85.5	58.8	55.9	.8	45	80	6.0	8.2	46,500	38,700	1"	FARR 30/30	250	250 PSIG	INTERNAL	SEE NOTES BELOW

GENERAL NOTES:
1. CONNECT (3/4" MIN) DRAIN TO NEAREST SHK, FLOOR DRAIN, OR PLUMBING FIXTURE TAIL PIECE; DITTO FOR CONDENSATE DRAIN LINE.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL DISCONNECT SWITCH AND STANDER IF REQUIRED.
3. INSTALL UNITS IN A MANNER ACCESSIBLE TO LOCAL CITY CODES PROVIDING REQUIRED ACCESS TO ALL UNIT ACCESS POINTS AND PROVIDING CLEAR SERVICE AREAS.
4. F.C. UNITS, VALVES, PIPINGS, ETC. TO BE RATED AT A MINIMUM OF 250 PSI WORKING PRESSURE UNLESS OTHERWISE NOTED.
5. PROVIDE ALL DUCTWORK ASSOCIATED WITH FAN COIL UNIT ABOVE AT 0.28" S.P./100FT. (MAX).
6. ALL F.C. UNITS SHALL HAVE LOCAL ROOM MOUNTED ON-OFF-AUTO SWITCHES AND THERMOSTATS (DOC SENSORS) FOR CONTROL TO MAINTAIN SPACE AT 75° F.
7. PROVIDE 3-WAY CONTROL VALVES.
8. PROVIDE 3-WAY CONTROL VALVES.
9. CONTRACTOR SHALL PROVIDE AND INSTALL UNED SUPPLY & RETURN AIR PLenums ON FAN COILS WITH FLEXIBLE CONNECTIONS TO THE FAN.
10. CONTRACTOR SHALL PROVIDE AND INSTALL 1" UNED RETURN AIR PLenum WITH FILTER RACK ASSEMBLY.
11. CONTRACTOR SHALL PROVIDE AND INSTALL DUCT TYPE SMOKE DETECTORS AT INLET & OUTLET OF EACH FAN COIL UNIT, OR ROOM AREA DETECTOR.
12. MECHANICAL CONTRACTOR SHALL PROVIDE SECONDARY DRAIN PANS FOR ALL FAN COILS. PLUMBING CONTRACTOR SHALL RUN 3/4" SECONDARY DRAIN LINE TO CENTER OF NEAREST DOORWAY AND TERMINATE 1/2" BELOW CEILING LINE.

10 EA @ 28,500 BTU = 285,000 BTU
1 EA @ 46,500 BTU = 46,500 BTU

TOTAL 331,500 BTU ≈ 28 TONS

LANGDON WILSON

ARCHITECTURE
PLANNING
INTERIORS

100 WILSON BOULEVARD, SUITE 200, LOS ANGELES, CALIFORNIA 90024-3448
310 207-9906
1800 VON SALLMAN AVENUE, SUITE 200, IRVINE, CALIFORNIA 92614-9177
949 433-9783
400 NORTH WABER STREET, SUITE 330, PHOENIX, ARIZONA 85004-3940
602 252-2558

Innovative Engineering Group, Inc.

2550 Corporate Place, Suite C100 TEL: 323.282.8188
Menlo Park, CA 91754 FAX: 313.282.9188

DEPT. OF BUILDING & SAFETY
CITY OF LOS ANGELES
MECHANICAL ENGINEERING DIVISION
APPROVED

SOLUTION

NO. 23207

FOX

AREA ONE
NEW OFFICE BUILDING
FOX ENTERTAINMENT GROUP

1001 WEST PICO BLVD., LOS ANGELES, CA 90015

CONSTRUCTION PHASE	RECONSTRUCTION PHASE			
REV. 1	DATE	DATE	ISSUED FOR	
Δ	ADDENDUM 1	2/7/05	3/2/04	SCHEMATIC DESIGN
			8/26/04	DESIGN DEVELOPMENT
			10/2/04	CD COORDINATION
			11/26/04	FOUNDATION DRY RANCHO
			1/16/05	FOUNDATION DRY RANCHO
			4/26/05	Δ CH # 2 PERMIT

CREATED BY: DATE: APRIL 07TH 2004

SCALE: 1/4"=1'-0" JOB NUMBER: 1001000 APPROVED/REVISED:

SHEET TITLE: MECHANICAL EQUIPMENT SCHEDULES SHEET NUMBER: C40 1A

M-0.02

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1000 WEST HOLLYWOOD BOULEVARD, SUITE 200A, LOS ANGELES, CALIFORNIA 90024-3448
TEL 323-857-9600
FAX 323-857-9601
2000 VAN SARDAN AVENUE, SUITE 200, IRVINE, CALIFORNIA 92614-2127
TEL 949-453-4300
455 NORTH TINDEN STREET, SUITE 313, PHOENIX, ARIZONA 85004-9940
TEL 602-252-5553

CITY OF LOS ANGELES
DEPARTMENT OF BUILDINGS AND SAFETY
DISABLED ACCESS SECTION

This set of drawings has been reviewed and is approved for compliance with the Americans with Disabilities Act of 1990. The contractor shall be held responsible for any violations of the Act. The contractor shall be held responsible for any violations of the Act. The contractor shall be held responsible for any violations of the Act.

SOLUTION

By: *J. J. Allen*



AREA ONE
NEW OFFICE BUILDING
FOX ENTERTAINMENT GROUP
3001 WEST PICO BLVD., LOS ANGELES, CA 90007

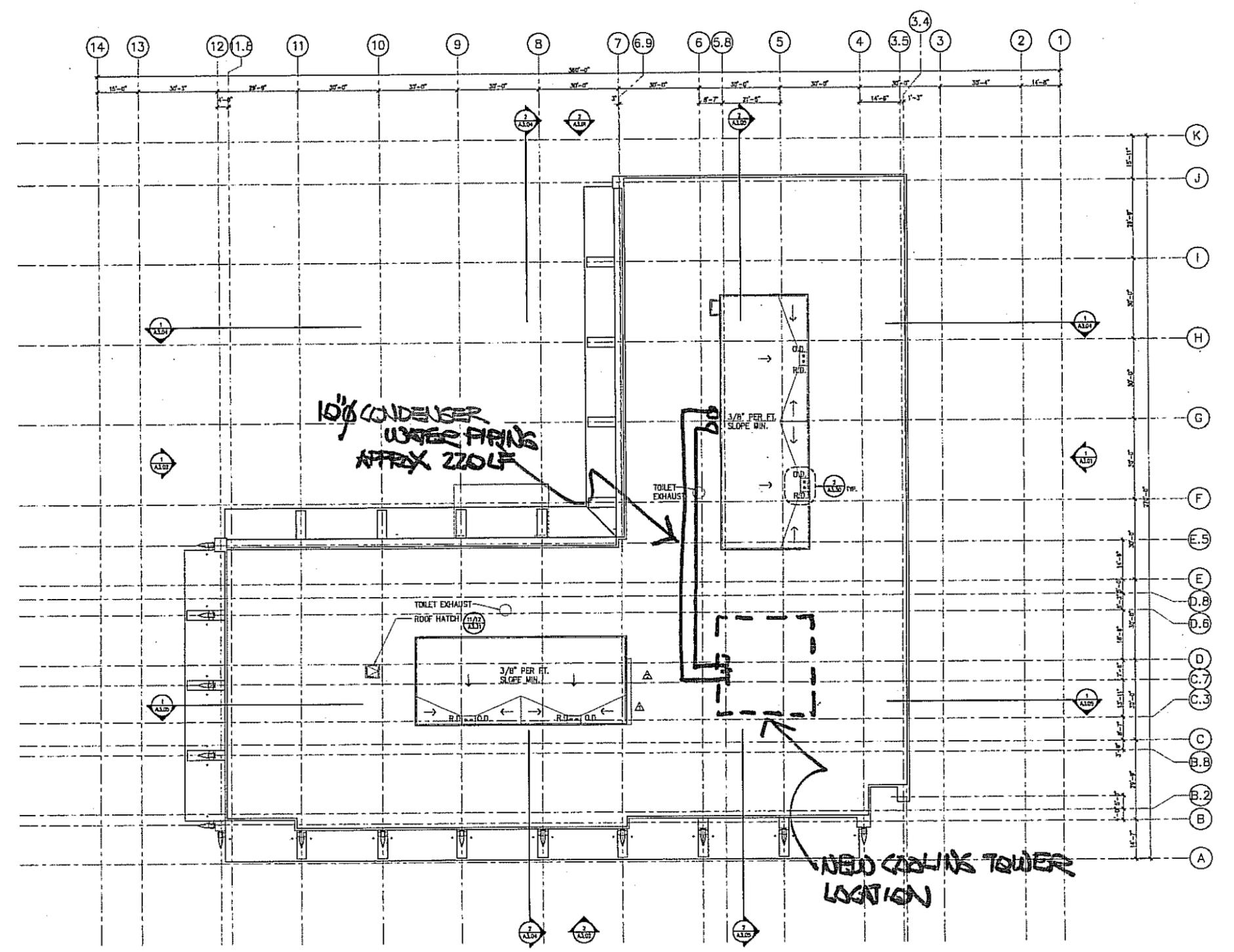
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FOUNDATION	7/0/00	7/0/00	FOUNDATION PERMIT
FOUNDATION	7/0/00	7/0/00	FOUNDATION PERMIT
FOUNDATION	7/0/00	7/0/00	FOUNDATION PERMIT
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FOUNDATION	7/0/00	7/0/00	FOUNDATION PERMIT
FOUNDATION	7/0/00	7/0/00	FOUNDATION PERMIT
FOUNDATION	7/0/00	7/0/00	FOUNDATION PERMIT

CHECKED BY: DATE: APRIL 28, 2001

SCALE: 1/8" = 1'-0" JOB NUMBER: L03-009
APPROVED ARCHITECT:

SHEET TITLE: **ROOF PLAN**

SHEET NUMBER: CAD ID: **A-2.11**



NOTE:
1. CLASS A ROOF - SEE 1/A-3.30 FOR TYPICAL ROOFING DETAIL.



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CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
ACCESSIBILITY SECTION

This set of plans and specifications has been reviewed and is approved for compliance with state and local laws and regulations related to accessibility. The stamping of this set of plans and specifications shall not be held to permit or be an approval of violation of any provisions of federal, state, and local laws and ordinances related to accessibility in public accommodations and housing.

By: _____
Date: _____

SOLUTION



J. Paul Alvarado



**AREA ONE
NEW OFFICE BUILDING
FOX ENTERTAINMENT GROUP**

3031 WEST PICO BLVD, LOS ANGELES, CA 90007

CONSTRUCTION PHASE	PRE-CONSTRUCTION	CONSTRUCTION
ENV. MAINTENANCE	3/20/05	3/20/05
SCHEMATIC DESIGN	3/20/05	3/20/05
DESIGN DEVELOPMENT	3/20/05	3/20/05
PERMITS	3/20/05	3/20/05
FOUNDATION PERMIT	3/20/05	3/20/05
FOUNDATION PERMIT	3/20/05	3/20/05
FOUNDATION PERMIT	3/20/05	3/20/05

CHECKED BY: _____ DATE: APRIL 19, 2005

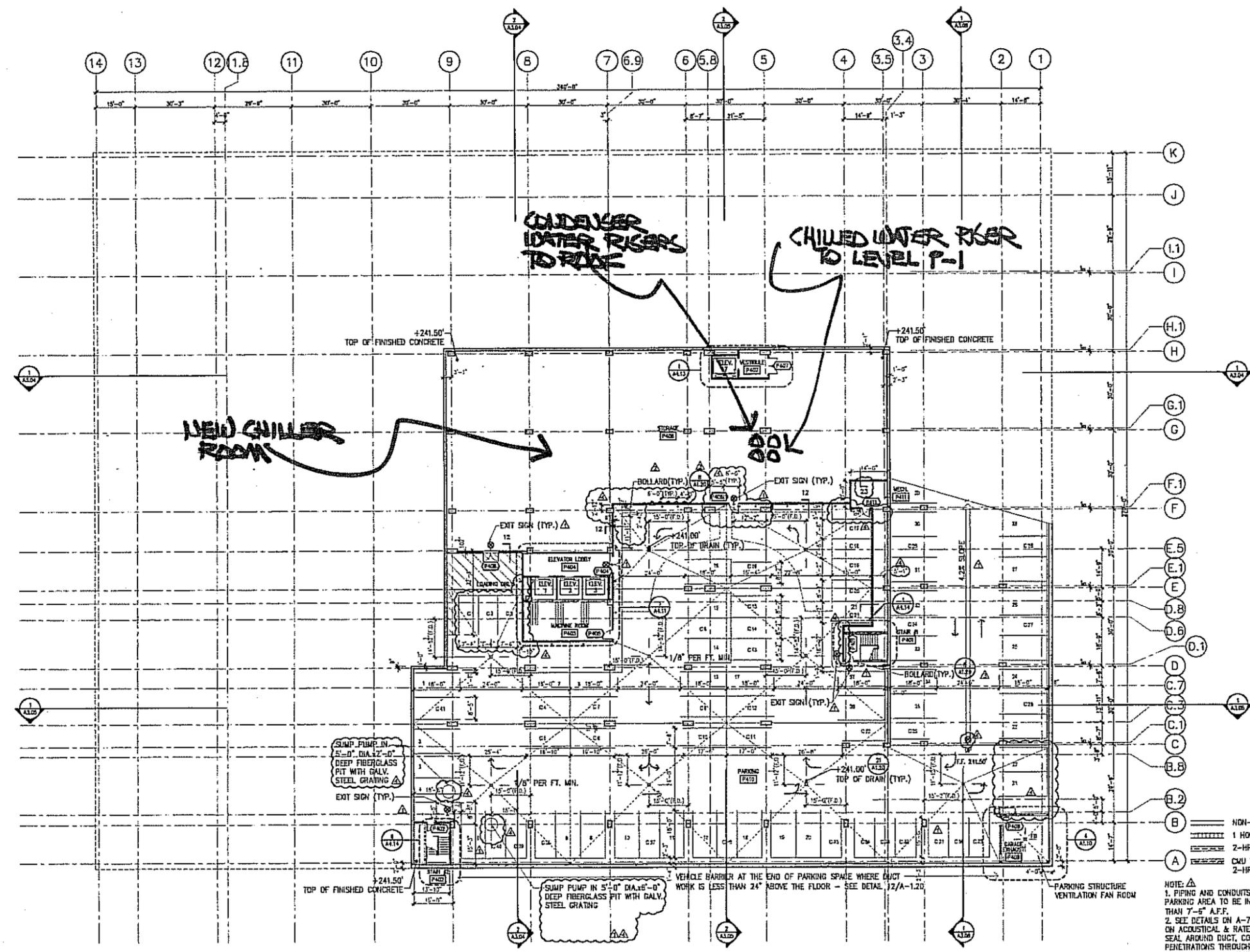
SCALE: 1/8" = 1'-0" JOB NUMBER: L12-000

APPROVED/NOI DETAIL

SHEET TITLE: **P-4 LEVEL FLOOR PLAN**

SHEET NUMBER: CAD 03

A-2.01



PARKING LAYOUT GENERAL NOTES
(UNLESS NOTED OTHERWISE)

- ALL COMPACT PARKING SPACES (C) ARE 7'-10" WIDE
- ALL PARKING SPACES WITHIN A COLUMN BAY ARE CENTERED WITHIN THAT BAY
- ALL STANDARD PARKING SPACES ARE 9'-4" WIDE
- ALL MOTORCYCLE PARKING SPACES ARE 4'-0" WIDE
- THE CLEAR SPACE BETWEEN A PARKING SPACE AND A WALL OR COLUMN IS 10" MIN.
- EACH PARKING SPACE IS MARKED BY A SINGLE LINE, SEE 1&2/A-1.20 FOR ACTUAL, TYPICAL STRIPING

AREA SUMMARY

LOCATION	GROSS AREA
P-1	91,883 S.F.
P-2	100,227 S.F.
P-3	100,010 S.F.
P-4	31,755 S.F.
TOTAL	323,875 S.F.

*STORAGE GROSS AREA-11,319 S.F.

PARKING SUMMARY

CARS	LOCATION					
	P-1	P-2	P-3	P-4	DECK	FIRE LANE
STANDARD	124	159	160	37	35	37
COMPACT	46	108	116	41	8	-
ACCESSIBLE	17*	-	-	-	2*	-
TOTAL-890 SPACES PROVIDED	187	267	276	78	45	37

*2.1% OF 890 SPACES

MOTORCYCLE-TOTAL 20 SPACES AT P-1

NOTE: 1. PIPING AND CONDUITS IN NON-ACCESSIBLE PARKING AREA TO BE INSTALLED NOT LOWER THAN 7'-5" A.F.F.
2. SEE DETAILS ON A-7.05 FOR INFORMATION ON ACoustICAL & RATED WALLS, ACoustICAL SEAL AROUND DUCT, CONDUIT & PIPE PENETRATIONS THROUGH PARTITIONS AND PIPE PENETRATIONS THROUGH CONCRETE SLAB.
3. SEE 11/A-1.21 FOR PIPE/CONDUIT PROTECTION DETAIL.

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DEPT. OF BUILDING & SAFETY
CITY OF LOS ANGELES
MECHANICAL PERMITS DIVISION
APPROVED
DATE: 4/11/04
BY: [Signature]

SOLUTION



**AREA ONE
NEW OFFICE BUILDING**
FOX ENTERTAINMENT GROUP

1001 WEST HOLLYWOOD BLVD, LOS ANGELES, CA 90024

CONSTRUCTION PHASE	PRE-CONSTRUCTION PHASE	ISSUED FOR
ADDENDUM 1	3/14/04	3/17/04
		SCHEMATIC DESIGN
		DESIGN DEVELOPMENT
		CD COORDINATION
		PERMISSION ONLY PERMITS
		PERMITS & INSURANCE
		CONTRACT

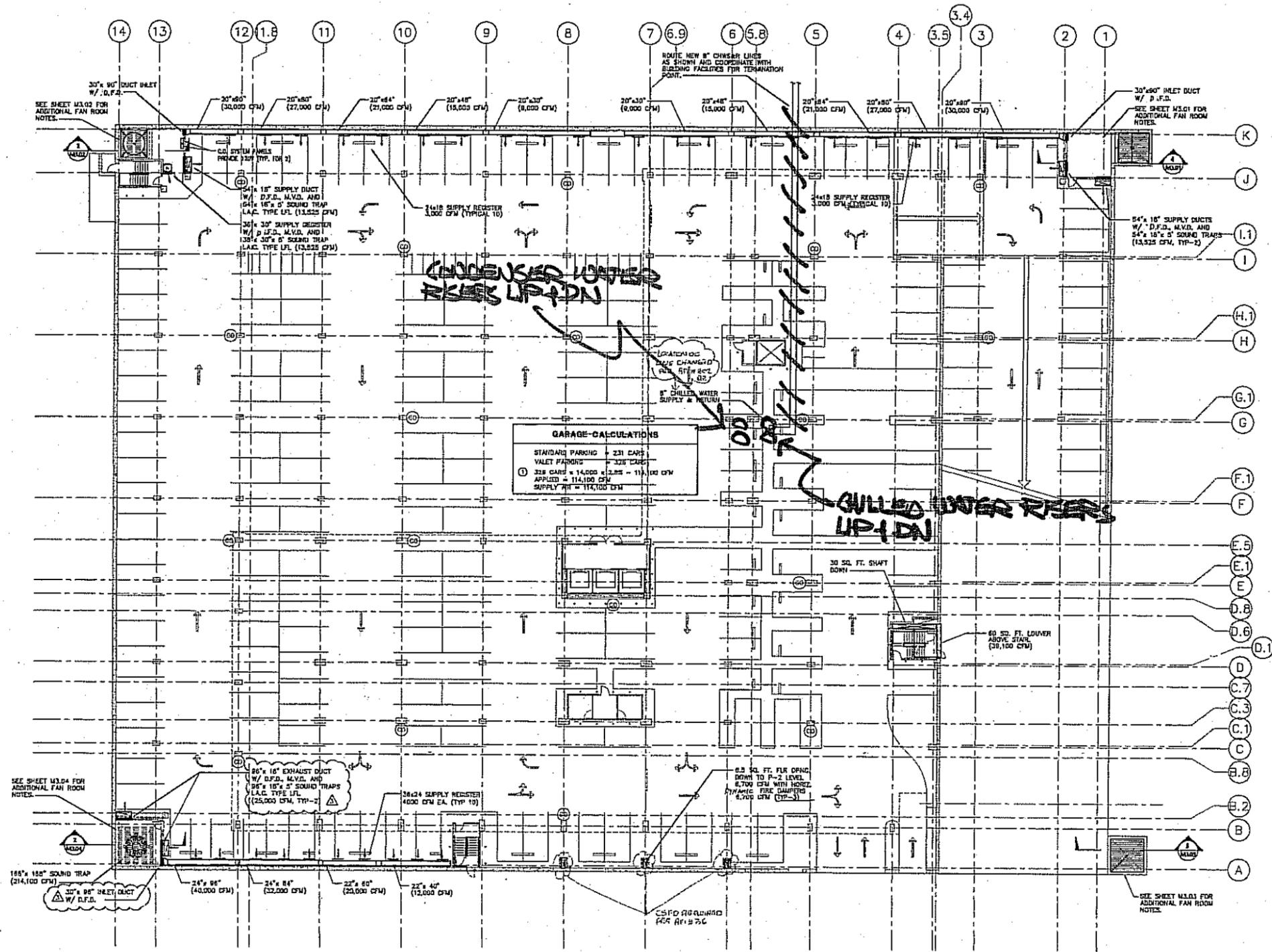
CHECKED BY: DATE: APRIL 13TH 2004

SCALE: 1/8"=1'-0" JOB NUMBER: L410-000

APPROVED/ARCHITECT: CAD ID:

SHEET TITLE: **PARKING LEVEL P-1**

SHEET NUMBER: **M-104**



ARCHITECTURAL WALL LEGEND

SYMBOL	TYPE
[Symbol]	RATED WALLS
[Symbol]	NON-RATED WALLS
[Symbol]	FUTURE WALLS
[Symbol]	CMU CONCRETE WALLS
[Symbol]	POURED CONCRETE WALLS

- PLAN CHECK COMMENTS**
1. PROVIDE DRAINAGE FIRE DAMPERS FOR ALL GARAGE/EXHAUST DUCTS PENETRATING RATED SWELLS IN FIRE SHEETS.
 2. PROVIDE DUCT TYPE SMOKE DETECTORS WITHIN 5' OF ALL CONCRESSION SMOKE FIRE DAMPERS.

- GENERAL NOTES**
1. CONTRACTOR SHALL INCLUDE IN HIS BID A COMPLETE GARAGE CARBON MONOXIDE DETECTION SYSTEM AS FOLLOWS:
 A. CONTROL PANELS ON EACH FLOOR
 B. MINIMUM OF ONE CO2 SENSOR PER 3000 SQ. FT.
 C. ONE (1) STROKE & ONE (1) ALBERT ALARM PER EACH FAN ZONE.
 D. ALL LEVELS EXCEPT P-4 SHALL HAVE TWO CO2 ZONES.
 2. CARBON MONOXIDE SYSTEM SHALL BE MANUFACTURED BY "MAGNIFICENT" (818) 845-2931, ON LOCAL.

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TAB 8

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8. ASC 2009 PCL BIM Problem Statement

The new Fox Office Building is just south of an existing office building (FNC Operations Building) with 3 stories of underground parking, see sheet A-1.02A. There is a bundle of fiber optic cables running underground between the two buildings, see sheet C-1.02. These fiber optic cables transmit the entirety of Fox's programming to the outside world. The cost of damaging these cables is 5 Million Dollars a minute of interrupted service. All necessary precautions need to be taken to avoid damaging these cables when drilling shoring tie-backs for the new building.

The shoring engineer designed the tiebacks for the north underground wall to enter the ground per the SH- series drawings, but he did not have all of the as-built information of the existing conditions.

We have established a 7'-0" "safety zone" from all sides of the 11"x11" conduit bank that the tieback can not violate. See C-1.20. Determine if the tiebacks at soldier pile #36 and #1 (4 total, 2 at each soldier pile) violate the safety zone and or conflict with any other existing conditions. (You may assume sections 1 and 4 on C-1.02 are cut at the tiebacks at soldier piles #36 and #1)

If the tiebacks conflict with the safety zone or any other existing conditions determine the most efficient tie-back angle to resolve the conflict. Tieback length increases 2'-0" for every 5° see Tieback Angle Variance Chart. Maintain 5'-0" clear between Tiebacks. The longer the tieback the more it cost to install.

The solution for this problem may be determined and presented with 3D software, 2D software or by hand sketches and manual calculations.

Electronic .dwg files have been provided for your solution development utilizing software. Your team may choose to develop a manual solution.

Deliverables:

- Narrative indicating revisions, if any, to the 4 tiebacks.
- Sketches/cross sections to visually demonstrate location of tiebacks in relation to the existing conditions.
- Optional-Prints of any 3D images to visually demonstrate problem solutions.

ASC 2009 PCL BIM Problem Solution

The most efficient angle for the tiebacks are as follows:

#36 Top Tieback = $32^\circ - 35^\circ$

#36 Bottom Tieback = $28^\circ - 30^\circ$

#1 Top Tieback = $24^\circ - 25^\circ$

#1 Bottom = Unchanged ($20^\circ - 25^\circ$)

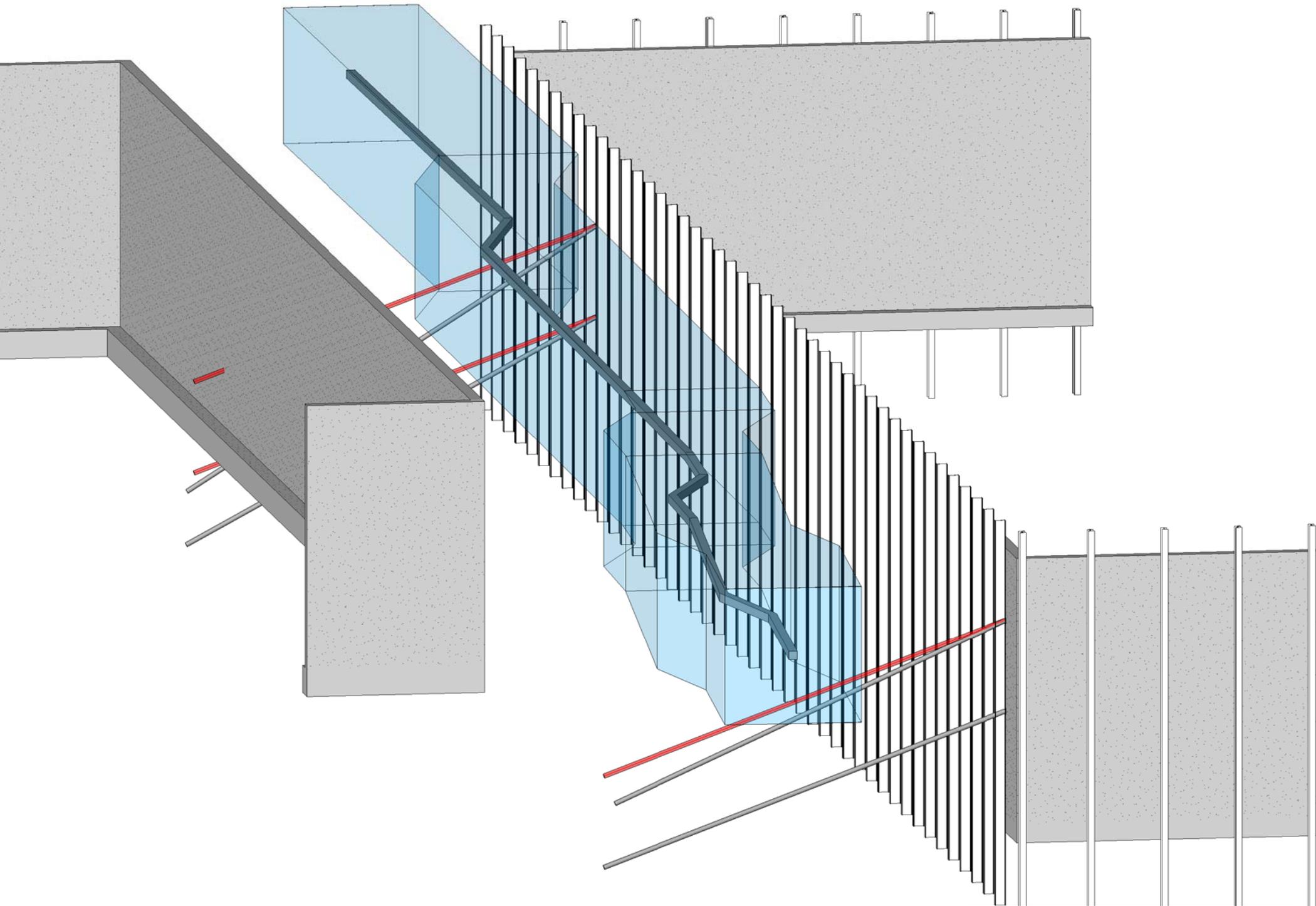
Note: Steeper angles are acceptable as long as but will result in additional cost

Bonus:

3D derived Deliverable

Cad derived Deliverable

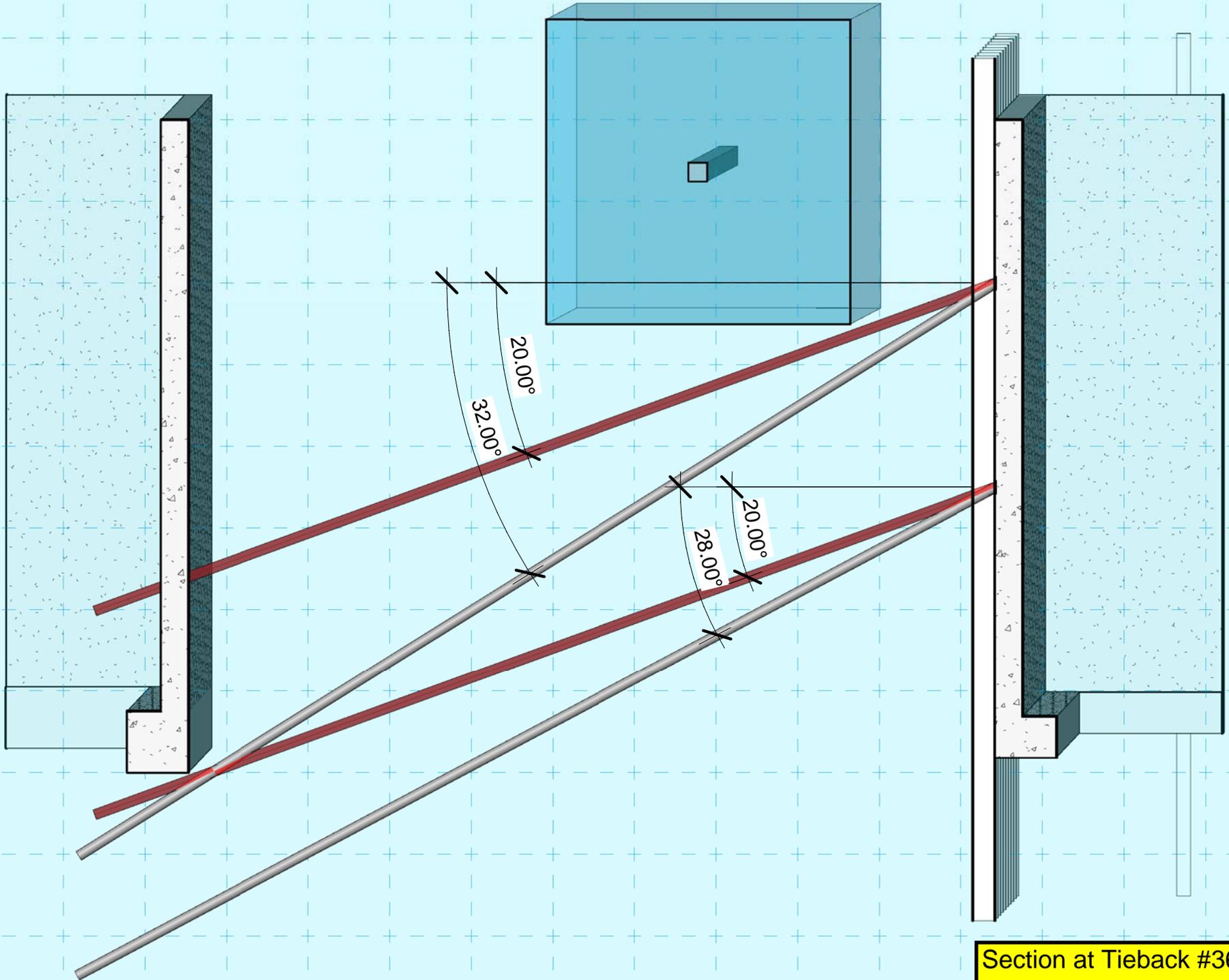
Mention of possible conflict between soldier pile 32 and manhole.



Isometric Looking South East

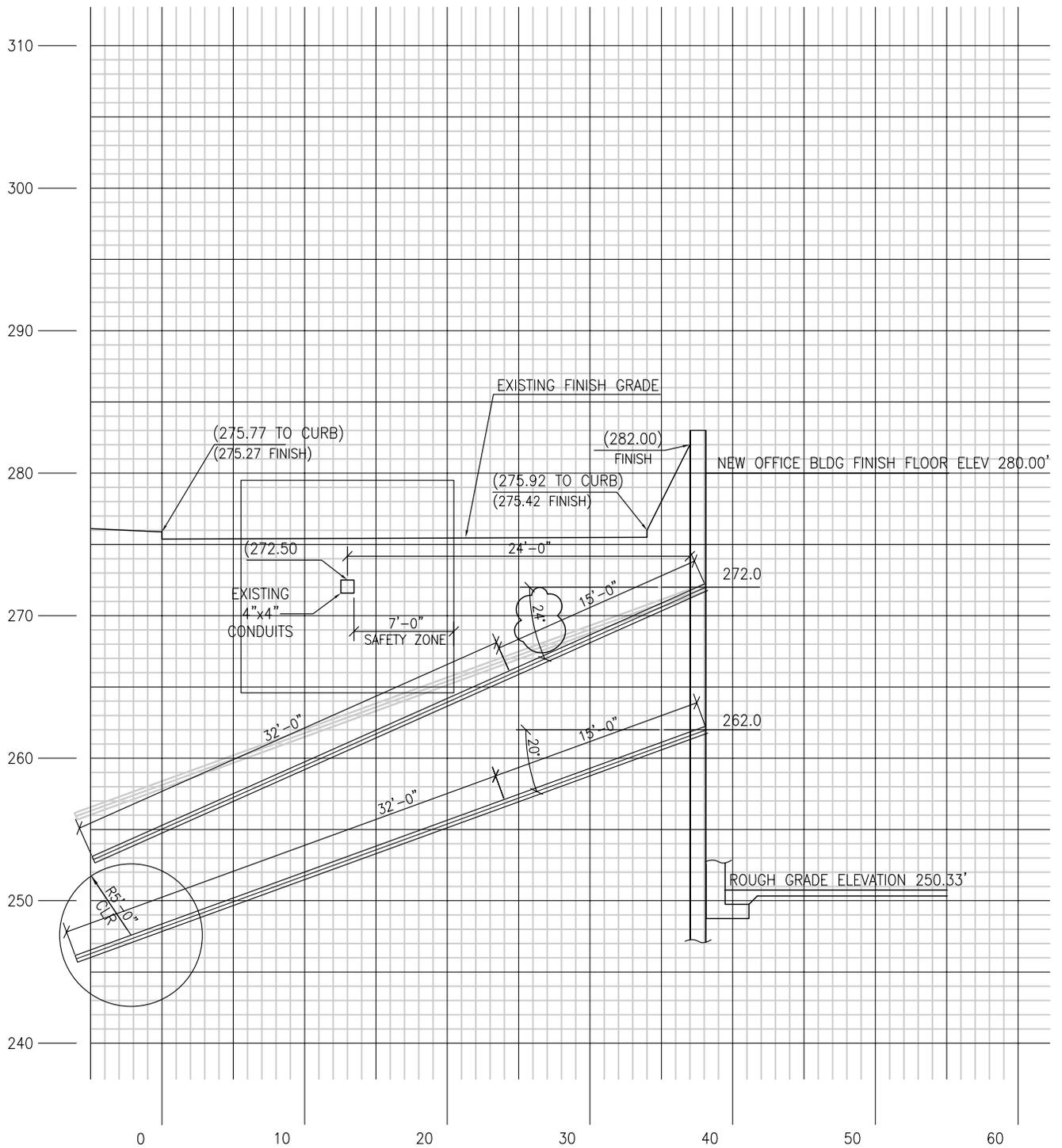
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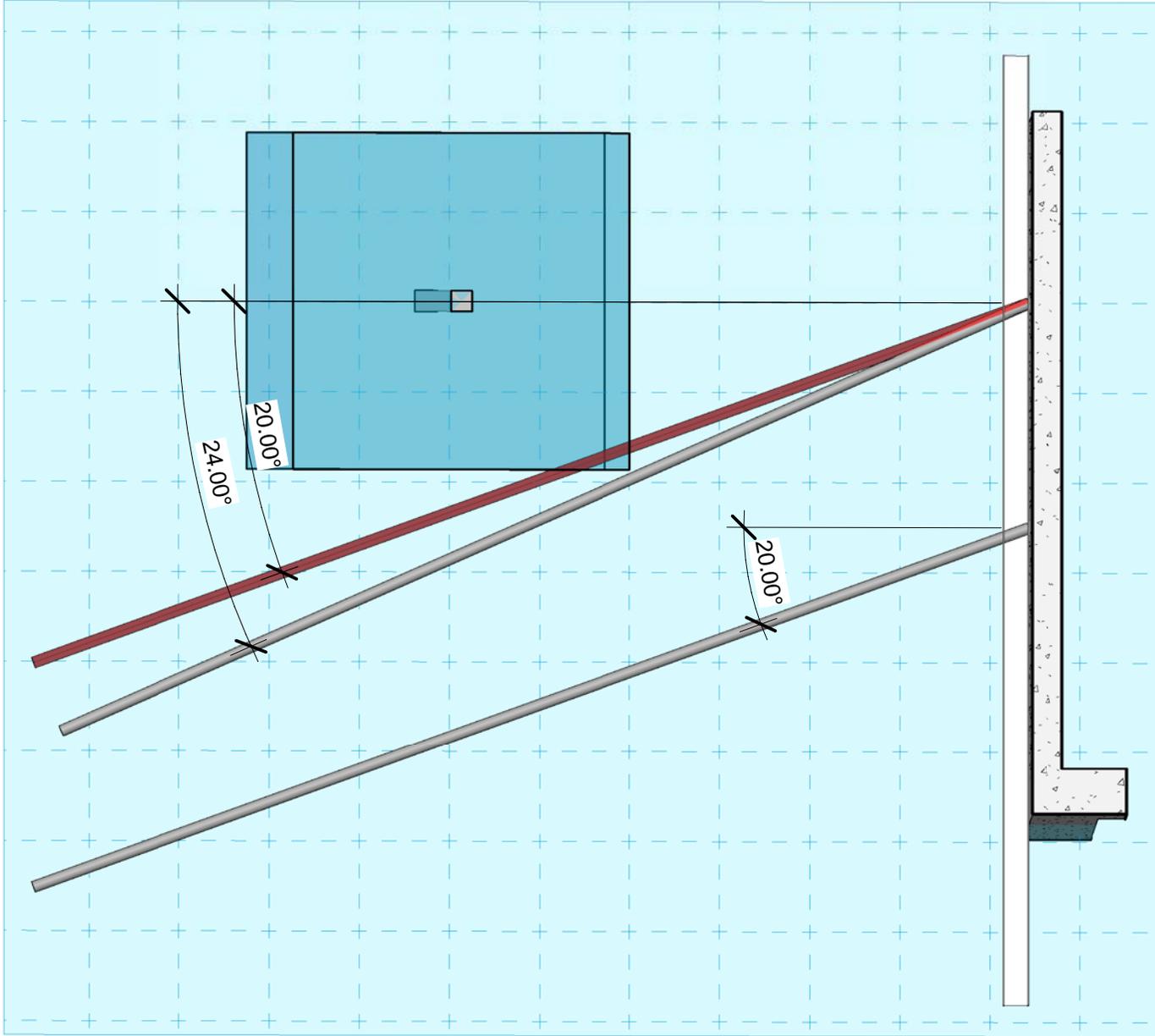
Section at Tieback #36

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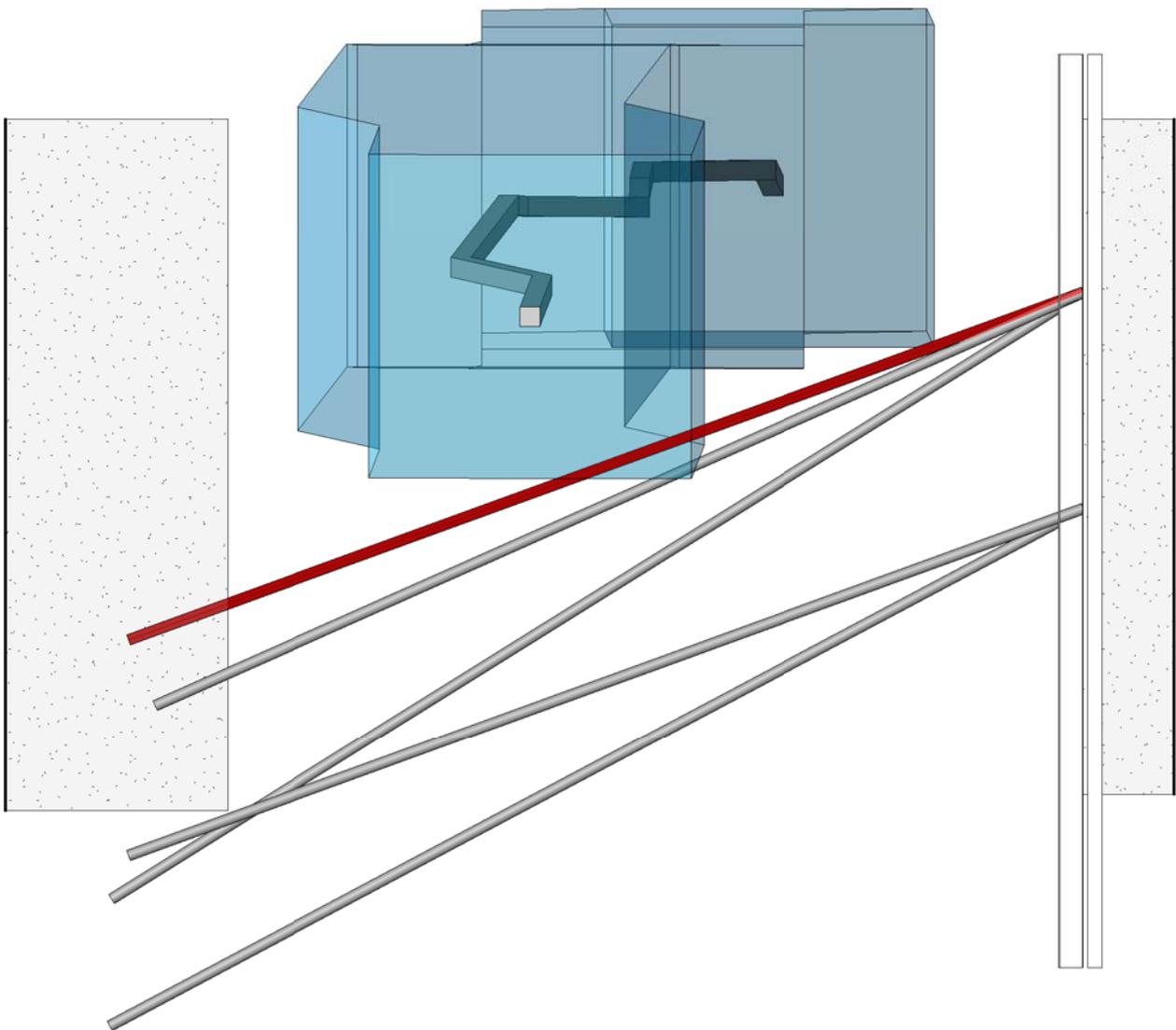
SOLUTION AT SOLDIER BM 1

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Section at Tieback #1

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Misc Section Looking West

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TAB 9

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9. LEED™ Analysis

The developer has questioned the team about possibly marketing a LEED™ for Core and Shell project.

Certifying a LEED™ project requires the combined effort of the entire project team. The owners, architect, consultants, and the construction team must all contribute in order to successfully certify a LEED™ building. After initial meetings conducted between the owner and the design team, 22 points have already been determined to be achievable. It is time for the construction team to provide their input on the amount of additional LEED™ points that they consider feasibly attainable.

Make a recommendation stating the number of LEED™ points attainable as follows:

- 1) Determine which additional points can be achieved at no additional cost to the owner to reach LEED Certified. Fill out a scorecard for LEED Certified and provide a narrative on the reasoning behind the selection of the points your team used to achieve LEED Certified.
- 2) Determine which additional points can be achieved at the lowest cost to the owner to reach LEED Silver. Fill out a scorecard for LEED Silver and provide a narrative on the reasoning behind the selection of the points your team used to achieve LEED Silver and an estimate of the additional costs.
- 3) Determine which additional points can be achieved and the cost to the owner to reach LEED Gold. Fill out a scorecard for LEED Gold and provide a narrative on the reasoning behind the selection of the points your team used to achieve LEED Gold and an estimate of the additional costs.

The following is a list of points that have been predetermined by the owner and design team. This information is also reflected in the LEED™ CS score card provided. Your Team only needs to evaluate the credits in the “?” column of the scorecard provided. Do Not change any previously predetermined credits by the owner and A/E Team.

Sustainable Sites

Credit 1 – Site Selection – 1pt

Credit 2 - Development Density and Community Connectivity – Unattainable

Credit 3 – Brownfield Redevelopment – Unattainable

Credit 4.1 – Alternative Transportation, Public Transportation – 1pt

Credit 4.4 – Alternative Transportation, Parking Capacity – Unattainable

Credit 5.1 – Site Development, Protect or Restore Habitat - Unattainable

Credit 5.2 – Site Development, Maximize Open Space – Unattainable

Credit 8 – Light Pollution Reduction – 1 pt

Credit 9 – Tenant Design & Construction Guidelines – 1pt

Water Efficiency

Credit 1.1 Water Efficient Landscaping, Reduce by 50% – Unattainable

Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation – Unattainable

Credit 3.2 Water Use Reduction, 30% Reduction - Unattainable

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Energy and Atmosphere

- Credit 1.5 – Optimize Energy Performance – 24.5% New Buildings – 5pts
- Credit 2 – On Site Renewable Energy – Unattainable
- Credit 3 – Enhanced Commissioning – 1pt
- Credit 4 – Enhanced Refrigerant Management – Unattainable
- Credit 5.2 - Measurement and Verification: Tenant Sub-Metering – *1pt*
- Credit 6 – Green Power – 1 pt

Materials and Resources

- Credit 1.1 Building Reuse, Maintain 25% of Existing Walls, Floors & Roof – 1 pt
- Credit 1.2 Building Reuse, Maintain 50% of Existing Walls, Floors & Roof – Unattainable
- Credit 1.3 – Building Reuse, Maintain 75% of Interior Non-Structural Elements - Unattainable
- Credit 3 - Materials Reuse, 1% - 1 pt
- Credit 4.1 – Recycled Content, 10% (Post Consumer + ½ Pre-Consumer) – 1 pt
- Credit 4.2 – Recycled Content, 20% (Post Consumer + ½ Pre-Consumer) – 1 pt
- Credit 5.1 – Regional Materials, 10% Extracted, Processed and Manufactured – 1pt.
- Credit 5.2 – Regional Materials, 20% Extracted, Processed and Manufactured – Unattainable
- Credit 6 – Certified Wood – Unattainable

Indoor Environmental Quality

- Credit 1 – Outdoor Air delivery Monitoring – 1 pt
- Credit 2 - Increased Ventilation – Unattainable
- Credit 4.1 – Low- Emitting Materials, Adhesives & Sealants – 1 pt
- Credit 4.2 – Low- Emitting Materials, Paints and Coatings – 1 pt
- Credit 4.3 – Low-Emitting Materials, Carpet Systems – Unattainable
- Credit 4.4 – Low Emitting Materials, Composite Wood & Agrifiber Products – Unattainable
- Credit 5 – Indoor Chemical & Pollutant Source Control – 1 pt
- Credit 6 – Controllability of Systems, Thermal Comfort – 1 pt
- Credit 7 – Thermal Comfort, Design – 1 pt
- Credit 8.1 – Daylight & Views, Daylight 75% of Spaces – Unattainable
- Credit 8.2 – Daylight & Views, Daylight 90% of Spaces – Unattainable

Innovation & Design Process

- Credit 1.1, 1.2, 1.3, 1.4 – Innovation in Design - Unattainable

Deliverable:

1. *Completed LEED™ Scorecard and Narrative for each of 3 levels of LEED (Certified, Silver & Gold)*

LEED Analysis Solution

Prepared By: Daniel Parras – PCL

SS Credit 4.2 Alternative Transportation: *Bicycle Storage and Changing Rooms* – 1pt

\$5,000 (No showers)

Obtain gross sq ft per employee from appendix 1 – 250 sq ft/employee

Total office building square footage – 199,369 sq ft

FTE – 798 occupants

Required Bicycle racks – 24 spaces

Showers Required – 4 Showers

This LEED point is feasible to obtain since bicycle racks are already required adjacent to the building's entrance. Moreover, there is a planned fitness center in the ground floor and even though there is no explicit information showing showers, it is reasonable to assume showers and changing rooms will be included in the Fitness Center.

SS Credit 4.3 Alternative Transportation, *Low Emitting & Fuel Efficient Vehicles* – 1pt

No Cost

Total Vehicle Parking Capacity – 890 Spaces

Required FEV Parking Spaces - 50

50 spaces designated for fuel efficient vehicles can be provided at no cost to meet this requirement.

SS Credit 6.1 Stormwater Design: *Quantity Control* – 1pt

\$80,000 (2 dry-wells)

To meet this credit, green roofs, pervious parkways or other permeable surfaces could be placed in lieu of the design surfaces. This could not be done at a minimal cost.

In addition, bio swales or dry-wells could also be installed on site to meet the requirements of this credit. Similarly though this alternative would come as an additional cost to the owner.

SS Credit 6.2 Stormwater Design: *Quality Control* – 1 pt

\$80,000 (quantity control cost includes quality control)

To meet this credit the 80% of the quantity of TSS (total suspended solids) in discharge streams must be removed. Similar to Credit 6.1, green roofs, pervious parkways or other permeable surfaces could be placed in lieu of the design surfaces to meet this credit.

However there would be an additional cost to the owner to implement.

In addition, bio swales or dry-wells could also be installed on site to meet the requirements of this credit. Similarly though this alternative would come at significant additional cost to the owner.

Associated Schools of Construction Competition
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SS Credit 7.1: Heat Island Effect: *Non-Roof – 1pt*

\$300,000 (high SRI elastomeric coating)

To meet this credit the existing asphaltic surfaces could be coated to raise the pavement's SRI to an acceptable level. This could be done at a significant additional cost to the owner.

SS Credit 7.2: Heat Island Effect: *Roof – 1pt*

\$40,000 (high SRI elastomeric coating)

Since the roof of the Fox Studios office building is a low slope roof. To meet the requirements of this credit, the roof has to be coated with a material that has an SRI greater than or equal to 78. White roof coatings or other coatings of high reflectivity are recommended.

WE Credit 2: Innovative Wastewater Technologies - Unattainable

This credit cannot be obtained without significant additional costs to the project. This credit involves reducing the use of potable water for sewer conveyance by 50% by using alternative sources of non-potable water. Recycled rainwater, treated waste water, or municipally treated waste water could all be sources to consider when achieving this credit. Not recommended.

WE Credit 3.1: Water Use Reduction: *20% Reduction – 1pt*

\$5000

This credit can be achieved by changing all flow fixtures to high efficiency fixtures. Lavatories faucets, water closets, urinals, showers and kitchen sinks can all be composed of high efficiency fixtures to achieve this credit.

EA Credit 5.1 Measurement and Verification: *Base Building – 1pt*

No Cost

To meet the requirements of this credit, metering of the buildings energy performance will be done 1x every year to check the systems yearly performance against their designed performance. The information will be made readily available to the owner in order to make this process simple and non tedious.

MR Credit 2.1 Construction Waste Management: Divert 50% From Disposal – 1pt

No Cost

To achieve this credit present a waste management plan that will highlight the key strategies to divert the targeted amount of construction waste. This is normally easy to do at no additional costs using a reputable waste management vendor.

MR Credit 2.2 Construction Waste Management: Divert 75% From Disposal – 1pt

\$10,000

To achieve this credit present a waste management plan that will highlight the key strategies to divert the targeted amount of construction waste. The level of waste reduction may involve diversion at an additional costs.

**Associated Schools of Construction Competition
National Preconstruction Services Problem
February 11-14, 2009**

EQ Credit 3: *Construction IAQ Management Plan: During Construction – 1pt*
No Cost, to meet the requirements of this credit, present an Indoor Air Quality Management Plan during Construction. Refer to SMACNA IAQ guidelines for buildings under construction.

ID Credit 2 – LEED Accredited Professional – 1 pt
No Cost, reputable construction contractors should have LEED AP's in their staff to associate to the project and meet the requirements of this credit. This may also be obtained from someone on the owner of A/E staff.

Certified

22 of predetermined points

- + SS Credit 4.3 Alternative Transportation, *Low Emitting & Fuel Efficient Vehicles – 1pt*
No Cost
 - + EA Credit 5.1 Measurement and Verification: *Base Building – 1pt*
No Cost
 - + MR Credit 2.1 Construction Waste Management: Divert 50% From Disposal – 1pt
No Cost
 - + EQ Credit 3: *Construction IAQ Management Plan: During Construction – 1pt*
No Cost
 - + ID Credit 2 – LEED Accredited Professional – 1 pt
No Cost
- =27 points, Certified No cost

Silver

27 points of certified level points, no cost

- + SS Credit 4.2 Alternative Transportation: *Bicycle Storage and Changing Rooms – 1pt*
\$5,000 (No showers)
 - + WE Credit 3.1: Water Use Reduction: *20% Reduction – 1pt*
\$5000
- =29 points, \$10,000 additional cost

Gold

29 of silver level points, \$10,000 cost

- + SS Credit 6.1 Stormwater Design: *Quantity Control – 1pt*
\$80,000 (2 dry-wells)
 - + SS Credit 6.2 Stormwater Design: *Quality Control – 1 pt*
No Cost if 6.1 is bought
 - + SS Credit 7.1: Heat Island Effect: *Non-Roof – 1pt*
\$300,000 (high SRI elastomeric coating)
 - + SS Credit 7.2: Heat Island Effect: *Roof – 1pt*
\$40,000 (high SRI elastomeric coating)
 - + MR Credit 2.1-2.2 Construction Waste Management: Divert 75% From Disposal – 1pt
\$10,000
- =34 points, \$430,000 additional cost + \$10,000 for Silver, Total Cost of \$440,000

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LEED for Core and Shell v2.0 Registered Project Checklist

Solution
No Cost, Achieve Certification

Project Name: Fox Office Building #103

Project Address: 10201 W. Pico Blvd, Los Angeles, CA 90035

Yes	?	No			
27	0	28	Project Totals (Pre-Certification Estimates)		
CERTIFIED			Certified: 23-27 points	Silver: 28-33 points	Gold: 34-44 points
				Platinum: 45-61 points	69 Points

Yes	?	No			
5		10	Sustainable Sites		
			15 Points		

Yes	?	No			Required
1			Prereq 1	Construction Activity Pollution Prevention	
			Credit 1	Site Selection	1
		1	Credit 2	Development Density & Community Connectivity	1
		1	Credit 3	Brownfield Redevelopment	1
1			Credit 4.1	Alternative Transportation , Public Transportation	1
		1	Credit 4.2	Alternative Transportation , Bicycle Storage & Changing Rooms	1
1			Credit 4.3	Alternative Transportation , Low-Emitting & Fuel Efficient Vehicles	1
		1	Credit 4.4	Alternative Transportation , Parking Capacity	1
		1	Credit 5.1	Site Development , Protect or Restore Habitat	1
		1	Credit 5.2	Site Development , Maximize Open Space	1
		1	Credit 6.1	Stormwater Design , Quantity Control	1
		1	Credit 6.2	Stormwater Design , Quality Control	1
		1	Credit 7.1	Heat Island Effect , Non-Roof	1
		1	Credit 7.2	Heat Island Effect , Roof	1
1			Credit 8	Light Pollution Reduction	1
1			Credit 9	Tenant Design & Construction Guidelines	1

Yes	?	No			
		5	Water Efficiency		
			5 Points		

		1	Credit 1.1	Water Efficient Landscaping , Reduce by 50%	1
		1	Credit 1.2	Water Efficient Landscaping , No Potable Use or No Irrigation	1
		1	Credit 2	Innovative Wastewater Technologies	1
		1	Credit 3.1	Water Use Reduction , 20% Reduction	1
		1	Credit 3.2	Water Use Reduction , 30% Reduction	1



LEED for Core and Shell v2.0

Registered Project Checklist

Yes	?	No		
9		1	Energy & Atmosphere	14 Points

Yes	Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
Yes	Prereq 2	Minimum Energy Performance	Required
Yes	Prereq 3	Fundamental Refrigerant Management	Required

***Note for EAc1:** All LEED for Core and Shell projects registered after June 26, 2007 are required to achieve at least two (2) points.

5			Credit 1	Optimize Energy Performance	1 to 8
			Credit 1.1	10.5% New Buildings / 3.5% Existing Building Renovations	1
			Credit 1.2	14% New Buildings / 7% Existing Building Renovations	2
			Credit 1.3	17.5% New Buildings / 10.5% Existing Building Renovations	3
			Credit 1.4	21% New Buildings / 14% Existing Building Renovations	4
			--> Credit 1.5	24.5% New Buildings / 17.5% Existing Building Renovations	5
			Credit 1.6	28% New Buildings / 21% Existing Building Renovations	6
			Credit 1.7	31.5% New Buildings / 24.5% Existing Building Renovations	7
			Credit 1.8	35% New Buildings / 28% Existing Building Renovations	8
		1	Credit 2	On-Site Renewable Energy	1
1			Credit 3	Enhanced Commissioning	1
		1	Credit 4	Enhanced Refrigerant Management	1
1			Credit 5.1	Measurement & Verification - Base Building	1
1			Credit 5.2	Measurement & Verification - Tenant Sub-metering	1
1			Credit 6	Green Power	1





LEED for Core and Shell v2.0 Registered Project Checklist

Yes	?	No		
6		5	Materials & Resources	
			11 Points	

Yes	?	No		
			Prereq 1	Storage & Collection of Recyclables Required
1			Credit 1.1	Building Reuse , Maintain 25% of Existing Walls, Floors & Roof 1
		1	Credit 1.2	Building Reuse , Maintain 50% of Existing Walls, Floors & Roof 1
		1	Credit 1.3	Building Reuse , Maintain 75% of Interior Non-Structural Elements 1
1			Credit 2.1	Construction Waste Management , Divert 50% from Disposal 1
		1	Credit 2.2	Construction Waste Management , Divert 75% from Disposal 1
1			Credit 3	Materials Reuse , 1% 1
1			Credit 4.1	Recycled Content , 10% (post-consumer + 1/2 pre-consumer) 1
1			Credit 4.2	Recycled Content , 20% (post-consumer + 1/2 pre-consumer) 1
1			Credit 5.1	Regional Materials , 10% Extracted, Processed & Manufactured 1
		1	Credit 5.2	Regional Materials , 20% Extracted, Processed & Manufactured 1
		1	Credit 6	Certified Wood 1

Yes	?	No		
6	0	3	Indoor Environmental Quality	
			11 Points	

Yes	?	No		
			Prereq 1	Minimum IAQ Performance Required
			Prereq 2	Environmental Tobacco Smoke (ETS) Control Required
1			Credit 1	Outdoor Air Delivery Monitoring 1
		1	Credit 2	Increased Ventilation 1
1			Credit 3	Construction IAQ Management Plan , During Construction 1
Y			Credit 4.1	Low-Emitting Materials , Adhesives & Sealants 1
Y			Credit 4.2	Low-Emitting Materials , Paints & Coatings 1
		N	Credit 4.3	Low-Emitting Materials , Carpet Systems 1
		N	Credit 4.4	Low-Emitting Materials , Composite Wood & Agrifiber Products 1
1			Credit 5	Indoor Chemical & Pollutant Source Control 1
1			Credit 6	Controllability of Systems , Thermal Comfort 1
1			Credit 7	Thermal Comfort , Design 1
		1	Credit 8.1	Daylight & Views , Daylight 75% of Spaces 1
		1	Credit 8.2	Daylight & Views , Views for 90% of Spaces 1

***Note for EQc4.1-4.4:** Project teams will receive 1 point for achievement of 2 credits, 2 points for achievement of 3 credits, or 3 points for achievement of 4 credits among EQc4.1, EQc4.2, EQc4.3 and EQc4.4.



LEED for Core and Shell v2.0 Registered Project Checklist

Yes	?	No		
1		4	Innovation & Design Process	5 Points
		1	Credit 1.1 Innovation in Design: Provide Specific Title	1
		1	Credit 1.2 Innovation in Design: Provide Specific Title	1
		1	Credit 1.3 Innovation in Design: Provide Specific Title	1
		1	Credit 1.4 Innovation in Design: Provide Specific Title	1
1			Credit 2 LEED® Accredited Professional	1





LEED for Core and Shell v2.0 Registered Project Checklist

Solution
10,000 Cost, Achieve Silver

Project Name: Fox Office Building #103

Project Address: 10201 W. Pico Blvd, Los Angeles, CA 90035

Yes	?	No			
29	0	26	Project Totals (Pre-Certification Estimates) 69 Points		
SILVER			Certified: 23-27 points	Silver: 28-33 points	Gold: 34-44 points Platinum: 45-61 points

Yes	?	No			
6		9	Sustainable Sites 15 Points		

Yes	?	No		
			Prereq 1 Construction Activity Pollution Prevention	Required
1			Credit 1 Site Selection	1
		1	Credit 2 Development Density & Community Connectivity	1
		1	Credit 3 Brownfield Redevelopment	1
1			Credit 4.1 Alternative Transportation , Public Transportation	1
1			Credit 4.2 Alternative Transportation , Bicycle Storage & Changing Rooms	1
1			Credit 4.3 Alternative Transportation , Low-Emitting & Fuel Efficient Vehicles	1
		1	Credit 4.4 Alternative Transportation , Parking Capacity	1
		1	Credit 5.1 Site Development , Protect or Restore Habitat	1
		1	Credit 5.2 Site Development , Maximize Open Space	1
		1	Credit 6.1 Stormwater Design , Quantity Control	1
		1	Credit 6.2 Stormwater Design , Quality Control	1
		1	Credit 7.1 Heat Island Effect , Non-Roof	1
		1	Credit 7.2 Heat Island Effect , Roof	1
1			Credit 8 Light Pollution Reduction	1
1			Credit 9 Tenant Design & Construction Guidelines	1

Yes	?	No			
1		4	Water Efficiency 5 Points		

		1	Credit 1.1 Water Efficient Landscaping , Reduce by 50%	1
		1	Credit 1.2 Water Efficient Landscaping , No Potable Use or No Irrigation	1
		1	Credit 2 Innovative Wastewater Technologies	1
1			Credit 3.1 Water Use Reduction , 20% Reduction	1
		1	Credit 3.2 Water Use Reduction , 30% Reduction	1



LEED for Core and Shell v2.0

Registered Project Checklist

Yes	?	No		
9		1	Energy & Atmosphere	14 Points

Yes			Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
Yes			Prereq 2	Minimum Energy Performance	Required
Yes			Prereq 3	Fundamental Refrigerant Management	Required

***Note for EAc1:** All LEED for Core and Shell projects registered after June 26, 2007 are required to achieve at least two (2) points.

5			Credit 1	Optimize Energy Performance	1 to 8
			Credit 1.1	10.5% New Buildings / 3.5% Existing Building Renovations	1
			Credit 1.2	14% New Buildings / 7% Existing Building Renovations	2
			Credit 1.3	17.5% New Buildings / 10.5% Existing Building Renovations	3
			Credit 1.4	21% New Buildings / 14% Existing Building Renovations	4
			--> Credit 1.5	24.5% New Buildings / 17.5% Existing Building Renovations	5
			Credit 1.6	28% New Buildings / 21% Existing Building Renovations	6
			Credit 1.7	31.5% New Buildings / 24.5% Existing Building Renovations	7
			Credit 1.8	35% New Buildings / 28% Existing Building Renovations	8
		1	Credit 2	On-Site Renewable Energy	1
1			Credit 3	Enhanced Commissioning	1
		1	Credit 4	Enhanced Refrigerant Management	1
1			Credit 5.1	Measurement & Verification - Base Building	1
1			Credit 5.2	Measurement & Verification - Tenant Sub-metering	1
1			Credit 6	Green Power	1



LEED for Core and Shell v2.0 Registered Project Checklist

Yes	?	No		
6		5	Materials & Resources	
			11 Points	

Yes				
			Prereq 1	Storage & Collection of Recyclables Required
1			Credit 1.1	Building Reuse , Maintain 25% of Existing Walls, Floors & Roof 1
		1	Credit 1.2	Building Reuse , Maintain 50% of Existing Walls, Floors & Roof 1
		1	Credit 1.3	Building Reuse , Maintain 75% of Interior Non-Structural Elements 1
1			Credit 2.1	Construction Waste Management , Divert 50% from Disposal 1
		1	Credit 2.2	Construction Waste Management , Divert 75% from Disposal 1
1			Credit 3	Materials Reuse , 1% 1
1			Credit 4.1	Recycled Content , 10% (post-consumer + 1/2 pre-consumer) 1
1			Credit 4.2	Recycled Content , 20% (post-consumer + 1/2 pre-consumer) 1
1			Credit 5.1	Regional Materials , 10% Extracted, Processed & Manufactured 1
		1	Credit 5.2	Regional Materials , 20% Extracted, Processed & Manufactured 1
		1	Credit 6	Certified Wood 1

Yes	?	No		
6	0	3	Indoor Environmental Quality	
			11 Points	

Yes				
			Prereq 1	Minimum IAQ Performance Required
			Prereq 2	Environmental Tobacco Smoke (ETS) Control Required
1			Credit 1	Outdoor Air Delivery Monitoring 1
		1	Credit 2	Increased Ventilation 1
1			Credit 3	Construction IAQ Management Plan , During Construction 1
Y			Credit 4.1	Low-Emitting Materials , Adhesives & Sealants 1
Y			Credit 4.2	Low-Emitting Materials , Paints & Coatings 1
		N	Credit 4.3	Low-Emitting Materials , Carpet Systems 1
		N	Credit 4.4	Low-Emitting Materials , Composite Wood & Agrifiber Products 1
1			Credit 5	Indoor Chemical & Pollutant Source Control 1
1			Credit 6	Controllability of Systems , Thermal Comfort 1
1			Credit 7	Thermal Comfort , Design 1
		1	Credit 8.1	Daylight & Views , Daylight 75% of Spaces 1
		1	Credit 8.2	Daylight & Views , Views for 90% of Spaces 1

***Note for EQc4.1-4.4:** Project teams will receive 1 point for achievement of 2 credits, 2 points for achievement of 3 credits, or 3 points for achievement of 4 credits among EQc4.1, EQc4.2, EQc4.3 and EQc4.4.



LEED for Core and Shell v2.0 Registered Project Checklist

Yes	?	No		
1		4	Innovation & Design Process	5 Points
		1	Credit 1.1 Innovation in Design: Provide Specific Title	1
		1	Credit 1.2 Innovation in Design: Provide Specific Title	1
		1	Credit 1.3 Innovation in Design: Provide Specific Title	1
		1	Credit 1.4 Innovation in Design: Provide Specific Title	1
1			Credit 2 LEED® Accredited Professional	1



LEED for Core and Shell v2.0 Registered Project Checklist

Solution
440,000 Cost, Achieve Gold

Project Name: Fox Office Building #103

Project Address: 10201 W. Pico Bld, Los Angeles, CA 90035

Yes	?	No		
34	0	21	Project Totals (Pre-Certification Estimates) 69 Points	
GOLD			Certified:	Platinum:
			23-27 points	45-61 points
			Silver:	Gold:
			28-33 points	34-44 points

Yes	?	No		
10		5	Sustainable Sites	15 Points

Yes	?	No		
			Prereq 1 Construction Activity Pollution Prevention	Required
1			Credit 1 Site Selection	1
		1	Credit 2 Development Density & Community Connectivity	1
		1	Credit 3 Brownfield Redevelopment	1
1			Credit 4.1 Alternative Transportation , Public Transportation	1
1			Credit 4.2 Alternative Transportation , Bicycle Storage & Changing Rooms	1
1			Credit 4.3 Alternative Transportation , Low-Emitting & Fuel Efficient Vehicles	1
		1	Credit 4.4 Alternative Transportation , Parking Capacity	1
		1	Credit 5.1 Site Development , Protect or Restore Habitat	1
		1	Credit 5.2 Site Development , Maximize Open Space	1
1			Credit 6.1 Stormwater Design , Quantity Control	1
1			Credit 6.2 Stormwater Design , Quality Control	1
1			Credit 7.1 Heat Island Effect , Non-Roof	1
1			Credit 7.2 Heat Island Effect , Roof	1
1			Credit 8 Light Pollution Reduction	1
1			Credit 9 Tenant Design & Construction Guidelines	1

Yes	?	No		
1		4	Water Efficiency	5 Points

		1	Credit 1.1 Water Efficient Landscaping , Reduce by 50%	1
		1	Credit 1.2 Water Efficient Landscaping , No Potable Use or No Irrigation	1
		1	Credit 2 Innovative Wastewater Technologies	1
1			Credit 3.1 Water Use Reduction , 20% Reduction	1
		1	Credit 3.2 Water Use Reduction , 30% Reduction	1



LEED for Core and Shell v2.0

Registered Project Checklist

Yes	?	No		
9		1	Energy & Atmosphere	14 Points

Yes			Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
Yes			Prereq 2	Minimum Energy Performance	Required
Yes			Prereq 3	Fundamental Refrigerant Management	Required

***Note for EAc1:** All LEED for Core and Shell projects registered after June 26, 2007 are required to achieve at least two (2) points.

5			Credit 1	Optimize Energy Performance	1 to 8
			Credit 1.1	10.5% New Buildings / 3.5% Existing Building Renovations	1
			Credit 1.2	14% New Buildings / 7% Existing Building Renovations	2
			Credit 1.3	17.5% New Buildings / 10.5% Existing Building Renovations	3
			Credit 1.4	21% New Buildings / 14% Existing Building Renovations	4
			--> Credit 1.5	24.5% New Buildings / 17.5% Existing Building Renovations	5
			Credit 1.6	28% New Buildings / 21% Existing Building Renovations	6
			Credit 1.7	31.5% New Buildings / 24.5% Existing Building Renovations	7
			Credit 1.8	35% New Buildings / 28% Existing Building Renovations	8
		1	Credit 2	On-Site Renewable Energy	1
1			Credit 3	Enhanced Commissioning	1
		1	Credit 4	Enhanced Refrigerant Management	1
1			Credit 5.1	Measurement & Verification - Base Building	1
1			Credit 5.2	Measurement & Verification - Tenant Sub-metering	1
1			Credit 6	Green Power	1



LEED for Core and Shell v2.0 Registered Project Checklist

Yes	?	No		
7		4	Materials & Resources	
			11 Points	

Yes	?	No		
			Prereq 1	Storage & Collection of Recyclables Required
1			Credit 1.1	Building Reuse , Maintain 25% of Existing Walls, Floors & Roof 1
		1	Credit 1.2	Building Reuse , Maintain 50% of Existing Walls, Floors & Roof 1
		1	Credit 1.3	Building Reuse , Maintain 75% of Interior Non-Structural Elements 1
1			Credit 2.1	Construction Waste Management , Divert 50% from Disposal 1
1			Credit 2.2	Construction Waste Management , Divert 75% from Disposal 1
1			Credit 3	Materials Reuse , 1% 1
1			Credit 4.1	Recycled Content , 10% (post-consumer + 1/2 pre-consumer) 1
1			Credit 4.2	Recycled Content , 20% (post-consumer + 1/2 pre-consumer) 1
1			Credit 5.1	Regional Materials , 10% Extracted, Processed & Manufactured 1
		1	Credit 5.2	Regional Materials , 20% Extracted, Processed & Manufactured 1
		1	Credit 6	Certified Wood 1

Yes	?	No		
6	0	3	Indoor Environmental Quality	
			11 Points	

Yes	?	No		
			Prereq 1	Minimum IAQ Performance Required
			Prereq 2	Environmental Tobacco Smoke (ETS) Control Required
1			Credit 1	Outdoor Air Delivery Monitoring 1
		1	Credit 2	Increased Ventilation 1
1			Credit 3	Construction IAQ Management Plan , During Construction 1
Y			Credit 4.1	Low-Emitting Materials , Adhesives & Sealants 1
Y			Credit 4.2	Low-Emitting Materials , Paints & Coatings 1
		N	Credit 4.3	Low-Emitting Materials , Carpet Systems 1
		N	Credit 4.4	Low-Emitting Materials , Composite Wood & Agrifiber Products 1
1			Credit 5	Indoor Chemical & Pollutant Source Control 1
1			Credit 6	Controllability of Systems , Thermal Comfort 1
1			Credit 7	Thermal Comfort , Design 1
		1	Credit 8.1	Daylight & Views , Daylight 75% of Spaces 1
		1	Credit 8.2	Daylight & Views , Views for 90% of Spaces 1

***Note for EQc4.1-4.4:** Project teams will receive 1 point for achievement of 2 credits, 2 points for achievement of 3 credits, or 3 points for achievement of 4 credits among EQc4.1, EQc4.2, EQc4.3 and EQc4.4.



LEED for Core and Shell v2.0 Registered Project Checklist

Yes	?	No		
1		4	Innovation & Design Process	5 Points
		1	Credit 1.1 Innovation in Design: Provide Specific Title	1
		1	Credit 1.2 Innovation in Design: Provide Specific Title	1
		1	Credit 1.3 Innovation in Design: Provide Specific Title	1
		1	Credit 1.4 Innovation in Design: Provide Specific Title	1
1			Credit 2 LEED® Accredited Professional	1

TAB 10

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10.) Bonus – “Red Light Procedure”

A very unique aspect of this project is that it is being built on a working TV & Movie production lot. While most TV and Movie filming is done inside of sound controlled buildings, the Fox lot has an outdoor filming area, which replicates a New York City street, hence the name NY Street. Film for TV and Movies is extremely sensitive to sound and vibration and must be carefully controlled, especially when filming occurs in an outdoor environment. An actual tripod with a flashing red strobe light is used to signal when the cameras are rolling, hence the name “Red Light” and that all noise and vibration which may impact the filming must be ceased immediately.

Some other interesting information is that a normal 8 hour filming day, which begins at 10:00 AM, breaks for lunch from 2:00 PM to 3:00 PM and is finished by 7:00 PM. During the 8 hour day, much of the time, 90%, is spent setting up a scene and rehearsing. Only about 10% of the time, are the cameras and sound equipment actually recording. Although the overall 8 hour +1 hour for lunch day is known, the actual time when the filming and sound recording occurs, happens when everything is ready and rehearsal is done, so it is not possible to know in advance when the actual “Red Light” will be turned on.

For the purpose of this problem, please assume that shooting on NY Street will occur a maximum of 2 days, Monday through Friday, per week, the TV & Movie Industry is on hiatus all of the Month of December and from June through August each year.

For this problem please develop a one page procedure of how your project team will successfully manage “Red Lights” Include contact information, how communications will flow and how you will track “Red Light” impacts against the Contract Allowance of 10 days. Describe in a narrative of steps your team will take to minimize the cost & schedule impacts from “Red Lights” and ensure the allowance is not exceeded during the course of the project. Provide an analysis, based upon your team’s procedure and efforts to minimize the cost & schedule impacts, of the anticipated cost and schedule impact to the project due to “Red Lights”.

Deliverable:

1. *“Red Light” Management Plan, Narrative and Projected Cost & Schedule Impact to the project*

Potential Solution:

1. Analysis of actual overlap between construction work hours 7am to 3:30pm and Red Light Filming of 10am to 7:00pm with lunch from 2-3pm, so the overlap is only a maximum of 4.5 hours per day, 2 days per week, 8 months per year. So total exposure is 18 month schedule (8/09 to 2/11) – 5 months Hiatus = 13 months x 4.3 wks/mo x 2 days/wk x 4.5 hrs/day=503 hours of red light exposure vs. the contract allowance of 10 days or 80 hours.
2. Analysis of potential actual filming (red light) exposure and the 10 day of 80 hour contract allowance. Actually filming is only 10% of the 503 hour exposure, 50 Hours, this is well below the 80 hour allowance in the Contract.
3. Narrative on how do you manage the total overlap between construction and filming of 503 hours, vs. the actually filming exposure of 50 hours. This is subjective, but our solution was to have a PCL representative present during the 503 hours of overlap exposure between construction and filming. This PCL Rep would be in radio contact with both the filming crew and the PCL job site. Everyone on the jobsite would know that we were on Red light alert that day and were instructed to stop work when the signal came from PCL. The PCL rep would receive a heads up from the filming crew 5 minutes prior to filming start and this PCL Rep would radio the job site and in less than 5 minutes all work was stopped prior to start of filming. When filming was done, about 10 minutes later, the PCL rep would radio back to the job site and the word would be given to restart work. So during each filming segment during the overlapped day, the job would shut down for 15 to 20 minutes. The 4.5 hour overlap = 270 minutes x 10% filming = 27 minutes approx 3-10 minute filming sessions during each over lap day. So on each day of filming the job was shut down for about 15 minutes, 3 times. So actual shut down during the course of the job was 45 minutes per filming day x 112 filming days over the course of the job = 5040 minutes = 84 hours, just slightly over our 80 hour contractual allowance.
4. Cost/Schedule Analysis: PCL Rep 503 hrs x \$60/hr = \$30,180. PCL coordination/monitoring from the job site 84 hours x \$85/hr = 7,140. Total cost is about 37K (40K), no schedule impact since the allowance of 80 hours which was included in the contract costs & schedule, was only exceeded by 4 hours.

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