

Basically the "instructions"

Sun Stone Parking Structure



The Scenario

Our objective with this problem statement is to provide you with a real life experience that touches on different aspects of our business. We hope that it provokes critical thinking, displays your technical skills, presentation skills and ability to work as a team.

- The project is the Sun Stone parking garage at San Diego State University. The delivery method is modified Construction Manager at Risk (CMAR)/Design-Build; basically CMAR with Design-Build aspects.
- The Building Group's California District pursued the project with a qualifications-based proposal and interview.
- Upon award, the preconstruction team spent 16 months working through design and ultimately established a Guaranteed Maximum Price (GMP) for the project.
- **You will only be focusing on the six-story, cast-in-place Sun Stone parking structure, which is located next to two six-story student housing towers that will be constructed concurrently with the garage.**
- This problem statement focuses on the self-perform concrete aspect of the company. Your team is comprised of talented Sundt employee-owners within the Concrete Division. A different team is responsible for the installation of the building scope and the parking garage foundations.
- Your team is assigned to build the frame of the garage (i.e. slab on grade, walls, columns, decks).
- Your team will need to assign the following roles: Project Manager, Field Superintendent for vertical work, Field Superintendent for horizontal work, Estimator, Quantity Take-off Engineer and Virtual Construction Technician.
- Our team is comprised of Building Group staff also working on the project with you and your Concrete Division Management.

Budget Confirmation

Your team needs to verify the budget we have to install your scope of work. Include all labor, material, equipment and other necessary items to construct the concrete frame of the parking structure.

As you know, preconstruction and operations are very much intertwined, although they are sometimes considered separate entities. We expect that you include your operations staff in your estimate to ensure that you are pricing the job the way you intend to build.

Budget Deliverables Due: February 9, 2017 at 8:00 PM

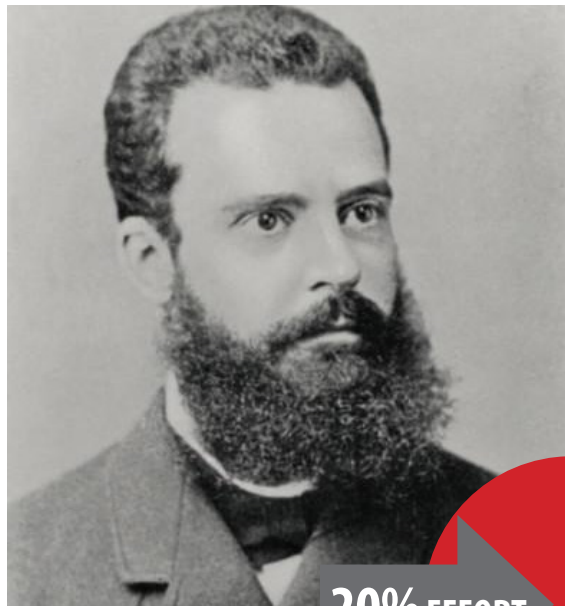
*****Early submittals will be accepted at the temporary Sundt office room # East Tower Suite 2901_ *****

- These are the only documents you are expected to complete and return by the deadline:
 - Exhibit A - Quantity Take-off Form
 - Exhibit B - Budget Breakdown Form
 - Exhibit C - Abstract Template for Reinforcing Subcontractor
- Use the following reference material to produce your estimate.
 - Exhibit D - Drawings
 - Exhibit E - Specifications
 - Exhibit F - Site Logistics Plan
 - Exhibit G - Production Table, Misc. Unit Cost Table
 - Exhibit H - Formwork Options
 - Exhibit I - Subcontractor and Vendor Quotes
 - Exhibit J - Brewer Corporation Tower Crane Logistics



Job Startup

The Pareto principle is a principle, named after economist Vilfredo Pareto, that specifies an unequal relationship between inputs and outputs. The principle states that 20% of the invested input is responsible for 80% of the results obtained.



Don't mess with Pareto!

20% EFFORT

80% RESULTS

Applying the Pareto Principal to construction, **SUCCESSFUL PROJECTS ARE A PRODUCT OF 80% PLANNING AND 20% EXECUTION.** Your operations staff has been assigned the construction of the garage frame. It is imperative that you put together a comprehensive, detailed Execution Plan for the completion of this work.

This section of the competition **will not have any hard deliverables**; instead, you will **share your plan with us during the job start up meeting on Friday, February 10, 2017.** A detailed agenda for the meeting will be distributed at a later date. The following are some examples of what you should consider while developing your Execution Plan.

- Organizational chart and Staffing Plan (From project manager to laborer)
- Visual representation of the plan
- Formwork analysis and explanation of system selection
- Overall project schedule which has been 'man loaded' so as to show an anticipated craft power curve
- Site Logistics plan
- Detailed Hoisting Plan (max pick weight and distance)
- Site-specific Safety Plan: Rather than a general company safety plan, please identify the top five safety risks associated with your scope and detail how each would be mitigated
- Project-specific Quality Plans: Rather than a general company quality management plan, please identify the top three quality concerns associated with your scope and detail how each would be mitigated

Use the following reference material to produce your Execution Plan

- Exhibit D - Drawings
- Exhibit E - Specifications
- Exhibit F - Site Logistics Plan
- Exhibit H - Formwork Vendor Drawings
- Exhibit I - Brewer Corporation Tower Crane Logistics

Additional Information

Questions?

You may submit any questions to the management team via e-mail to:

- **Shawn Blubaum**, Sundt Construction, at sablubaum@sundt.com by Thursday, February 9, 2017 @ 5:00pm. Responses will be provided at or before Thursday, February 9, 2017 @ 6:30pm.
- A phone number will also be made available.

As your fellow employee-owners we encourage open communication, so don't hesitate to ask questions.

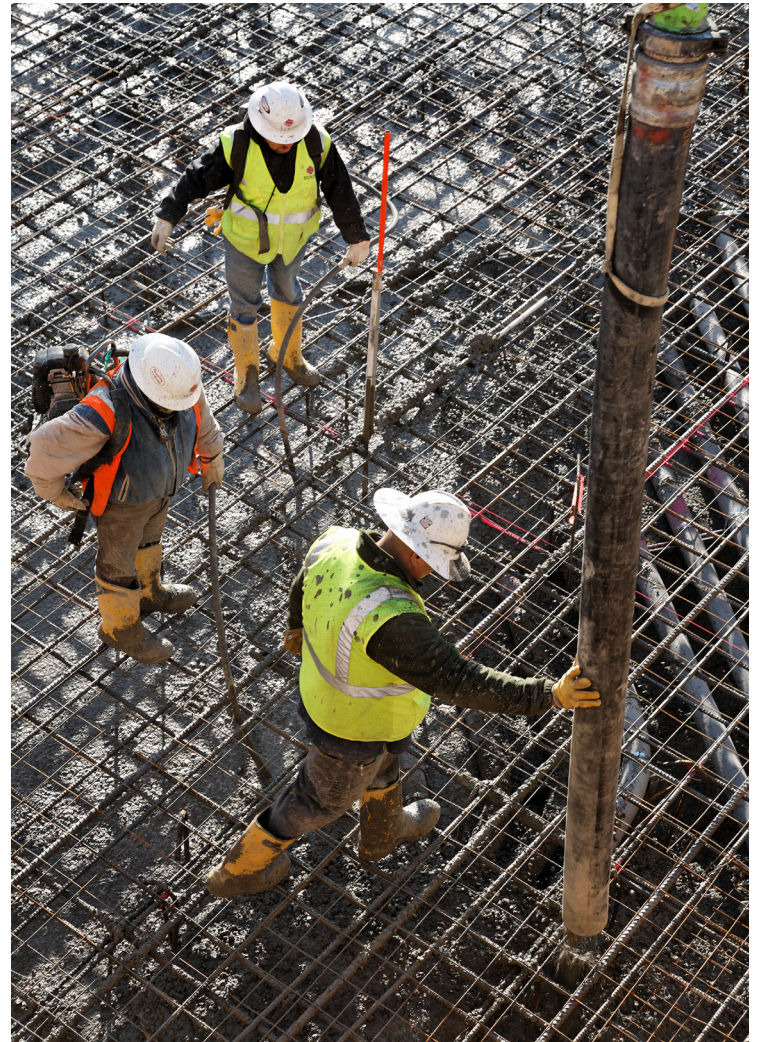
Job Startup Meeting

You will be participating in a job start-up meeting with the management team on Friday, February 10th, 2017 in the Southern Pacific AGB room. A meeting agenda and presentation schedule will be distributed today between 1:00pm and 5:00pm.

The presentation time block will include:

- 2 minutes for set-up
- 15 minutes for presentation
- 20 minutes for questions and answers
- 3 minutes for take-down
- 5 minutes of intermission between candidates' presentations

The presentation portion of the meeting should address all items noted on the job startup meeting agenda.



Scoring Criteria

PERCENTAGE	POINTS	DESCRIPTION
10%	10	Pre-Competition Exercise
15%	15	Budget Confirmation – Quantity Take-off
25%	25	Budget Confirmation – Budget
25%	25	Job Startup Meeting – Presentation
25%	25	Job Startup Meeting – Q&A
--	5	“Concrete Solutions” BONUS

Problem Statement Exhibits



Exhibit A - Quantity Take-off

TEAM NAME: _____

DESCRIPTION	QUANTITY	UNITS OF MEASURE (UM)
Total cubic yards		CY
Slab on grade		SF
Ramp on grade		SF
Shear walls		SF (one side)
Crash walls and other misc. walls		SF (one side)
Columns		CY
Decks (including beams)		SF
Elevator penthouse slab on metal deck		SF
Cart curbing and other misc. curbs		LF
Cooling tower pedestals		CY

*****All yardage quantities should include any necessary waste factors*****

Exhibit B – Budget Breakdown

TEAM NAME: _____

TOTAL BUDGET (INCLUDING TAXES, BURDEN, & FEE):	\$	
BREAKDOWN		
Labor:	\$	
Administrative Work Hours:		Hours
Craft Work Hours:		Hours
Materials:	\$	
Equipment:	\$	
Subcontracts:	\$	
Fee Amount:	\$	
KEY INDICATORS		
General Conditions/General Requirements Percent		%
Fee Percent		%
Overall Work Hours per Cubic Yard		/ CY
MISCELLANEOUS RATIOS		
	\$\$\$\$	UM
Total cost per parking stall:	\$	/ EA
Total cost per square foot (total usable space):	\$	/ SF
Total cost per cubic yard:	\$	/ CY
Deck cost per square foot:	\$	/ SF
Shear wall cost per square foot (one side):	\$	/ SF
Column cost per cubic yard:	\$	/ CY
Reinforcing value per pound (mild steel + pt):	\$	/ LB

Exhibit D – Project Drawings

See USB for usable file

Exhibit E – Project Division 3 Specifications

See USB for usable file

Exhibit G – Budget and Job Start-up Reference Information

See USB for usable file

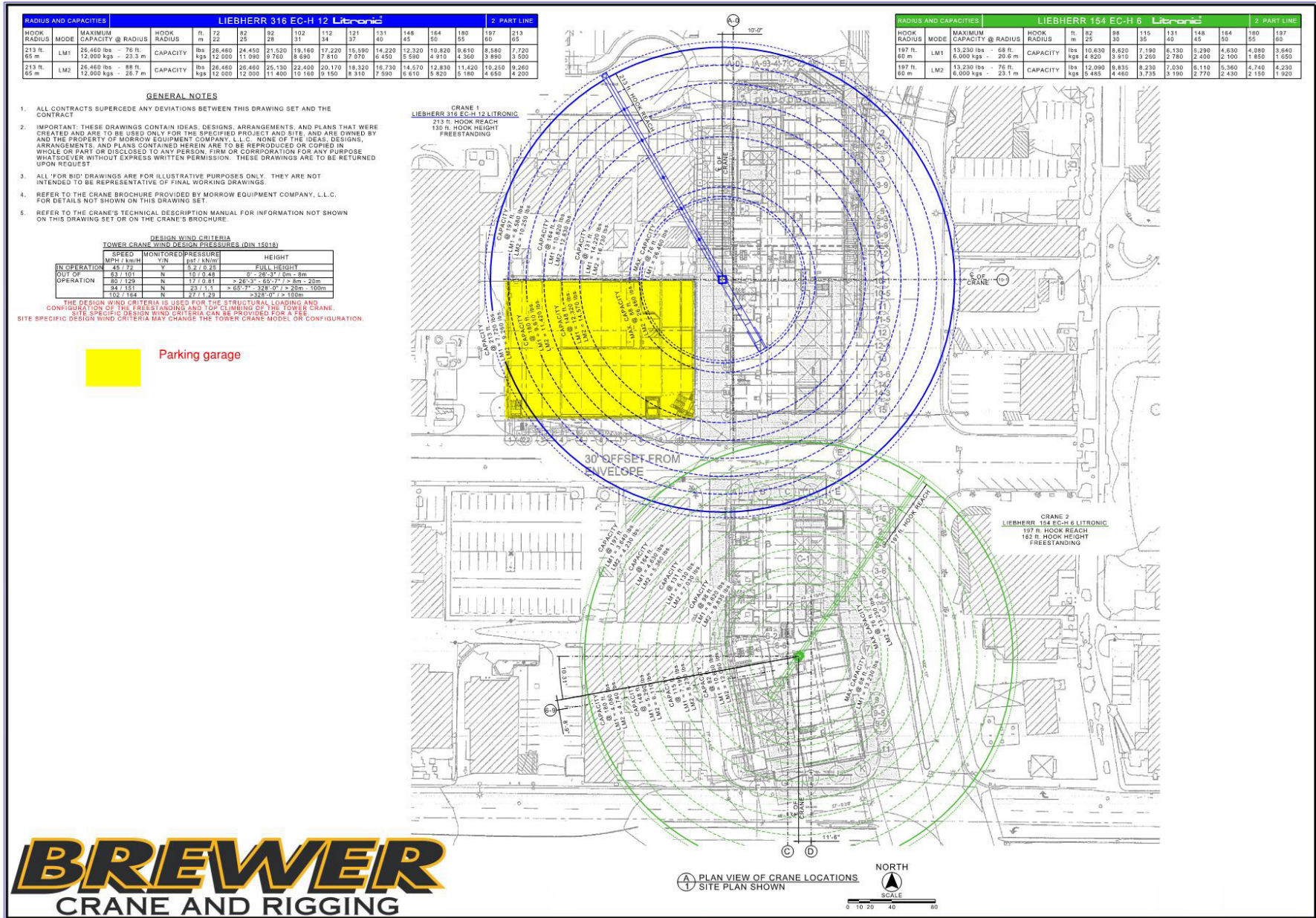
Exhibit H – Ready Mixed Concrete Supply Quotes

See USB for usable file

Exhibit I – Reinforcing Subcontractor Quotes

See USB for usable file

Exhibit J- Brewer Corporation Tower Crane Logistics



RADIUS AND CAPACITIES		LIEBHERR 316 EC-H 12 LITRONIC												2 PART LINE		
HOOK RADIUS	MODE	MAXIMUM CAPACITY @ RADIUS	HOOK RADIUS	ft.	12	15	20	25	30	35	40	45	50	55	60	65
213 R.	LM1	26,460 lbs - 76 ft.	CAPACITY	lbs	26,460	24,450	21,520	19,180	17,220	15,590	14,220	12,920	10,820	9,610	8,580	7,720
65 m		12,000 kgs - 23.3 m		kgs	12,000	11,090	9,760	8,690	7,970	6,450	6,450	4,910	4,360	3,860	3,500	
213 R.	LM2	26,460 lbs - 88 ft.	CAPACITY	lbs	26,460	24,450	25,130	22,400	20,170	18,320	16,730	14,570	12,830	11,420	10,250	9,260
65 m		12,000 kgs - 26.7 m		kgs	12,000	12,000	11,400	10,160	9,150	8,310	7,590	6,610	5,820	5,180	4,650	4,200

RADIUS AND CAPACITIES		LIEBHERR 154 EC-H 6 LITRONIC												2 PART LINE	
HOOK RADIUS	MODE	MAXIMUM CAPACITY @ RADIUS	HOOK RADIUS	ft.	25	30	35	40	45	50	55	60	65		
197 R.	LM1	13,230 lbs - 68 ft.	CAPACITY	lbs	10,630	8,620	7,190	6,130	5,290	4,630	4,080	3,640			
60 m		6,000 kgs - 20.6 m		kgs	4,820	3,910	3,260	2,780	2,400	2,100	1,850	1,650			
197 R.	LM2	13,230 lbs - 76 ft.	CAPACITY	lbs	12,990	8,835	8,230	7,030	6,110	5,360	4,740	4,230			
60 m		6,000 kgs - 23.1 m		kgs	5,485	4,460	3,735	3,190	2,770	2,430	2,150	1,920			

- GENERAL NOTES**
- ALL CONTRACTS SUPERCEDE ANY DEVIATIONS BETWEEN THIS DRAWING SET AND THE CONTRACT.
 - IMPORTANT: THESE DRAWINGS CONTAIN IDEAS, DESIGNS, ARRANGEMENTS, AND PLANS THAT WERE CREATED AND ARE TO BE USED ONLY FOR THE SPECIFIED PROJECT AND SITE. AND ARE OWNED BY AND THE PROPERTY OF MORROW EQUIPMENT COMPANY, L.L.C. NONE OF THE IDEAS, DESIGNS, ARRANGEMENTS, AND PLANS CONTAINED HEREIN ARE TO BE REPRODUCED OR COPIED IN WHOLE OR PART OR DISCLOSED TO ANY PERSON, FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT EXPRESS WRITTEN PERMISSION. THESE DRAWINGS ARE TO BE RETURNED UPON REQUEST.
 - ALL "FOR BID" DRAWINGS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THEY ARE NOT INTENDED TO BE REPRESENTATIVE OF FINAL WORKING DRAWINGS.
 - REFER TO THE CRANE BROCHURE PROVIDED BY MORROW EQUIPMENT COMPANY, L.L.C. FOR DETAILS NOT SHOWN ON THIS DRAWING SET.
 - REFER TO THE CRANE'S TECHNICAL DESCRIPTION MANUAL FOR INFORMATION NOT SHOWN ON THIS DRAWING SET OR ON THE CRANE'S BROCHURE.

DESIGN WIND CRITERIA
TOWER CRANE WIND DESIGN PRESSURES (DIN 15018)

SPEED	MONITORED PRESSURE	HEIGHT	
MPH (km/hr)	PSF (kN/m²)	FT (M)	
IN OPERATION	45 / 12	5.7 / 0.25	FULL HEIGHT
OUT OF OPERATION	83 / 101	16 / 0.48	R = 26'-3" / 0m - 8m
	80 / 125	17 / 0.51	> 26'-3" / 8m - 25m
	84 / 151	25 / 1.1	> 65'-7" / 328'-0" > 25m - 100m
	102 / 164	37 / 1.12	> 328'-0" > 100m

THE DESIGN WIND CRITERIA IS USED FOR THE STRUCTURAL LOADING AND CONFIGURATION OF THE FREESTANDING AND TOP-CLIMBING OF THE TOWER CRANE. SITE SPECIFIC DESIGN WIND CRITERIA CAN BE PROVIDED FOR A FEE. SITE SPECIFIC DESIGN WIND CRITERIA MAY CHANGE THE TOWER CRANE MODEL OR CONFIGURATION.

Parking garage

BREWER
CRANE AND RIGGING

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Brewer Corporation
SDSU South Plaza Verde
San Diego, CA

MEC

Dr. by: GJS / Ch. by: PAL
Title:
PLAN VIEW OF CRANE LOCATIONS
Issue Purpose:
NOT FOR CONSTRUCTION
BID DRAWING "1"
Date:
11-05-14
Rev. No. / Rev. Date: / Rev. By: / Ch. By:
Job number:
1411-009
Sheet:
1 of **1**