

Region VII- Commercial Building Division February 13-16, 2008

Problem Statement



Central Service Yard San Jose, CA

Problem Sponsor:



Hensel Phelps Construction Co.

Competing Teams:



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I. COMMERCIAL DIVISION TIME TABLE

THURSDAY, FEBRUARY 14TH

Pick-up Problem Statement	6:00 AM
Written Questions (RFI's) Due	10:00 AM
First Progress Meeting	10:00 AM
Second Progress Meeting / Question Session	2:00 PM
Subcontractor Interviews (10 min. / team)	5:00 – 7:00 PM

FRIDAY, FEBRUARY 15TH

Proposals Due	12:00 AM (Midnight)
Interview Start Times Posted	9:00 AM
Interview Material Due (all teams)	9:45 AM
Interviews Start	10:00 AM
Project Debriefing	6:30 PM

SATURDAY, FEBRUARY 16TH

Career Fair	
Awards Banquet / Luncheon	12:15 PM



II. PREFACE

WELCOME to the 2008 ASC Student Competition. All participants are to be commended for the personal time and financial commitment made in attending this competition. The <u>construction industry</u> has noted these sacrifices and the premier student population that is competing here. This is evident in the quantity of companies attending the "Job Fair" (see Saturday schedule).

The student competition is designed to enhance and expose every team member to different facets of the construction industry. Each team's estimating, scheduling, organizational, leadership, productivity, and communication skills will be tested **and enhanced** while participating in this competition.

The competition will present each participant with construction industry exposure that may not otherwise be experienced until after several years of work in the industry. This experience should, therefore, be considered priceless. It is Hensel Phelps Construction Co.'s desire to present each team member with real life situations through this competition. Some of these "experiences" may seem uncomfortable and/or appear to contain no logic. Be aware the real world is not always fair and not always logical!!! The construction industry will present situations where people are less than pleasant and some that know it all. Some real life questions may have two answers and some questions may have no correct answer. These situations are presented to the teams to expand their real life experiences. The superior level of the student competitors attending the competition should embrace these challenges and recognize the value of these situations. Although it is human nature to "take it personal", please understand your development process is in action. At the end of the competition each team member should reflect on the knowledge and experience gained.

As a driven team member, realize that all teams have come to the competition with the main goal of WINNING! However, with so many competitors, also realize that there can only be one winner announced. As an intelligent, driven and committed individual recognize the vast knowledge, industry exposure, and experience gained in competing and finishing this competition. This is the real reason all teams and individuals are competing. Yes, it is true; every person competing is a winner <u>regardless</u> of the final overall placement. Make sure you, and your team, understand this; it does make a difference.

Determination of the Winner is based on a **uniform grading scale** for the written portion of the competition. The oral presentation is judged via a **multi-member judge panel.** The combination of these two components, in the scoring ratios listed, determines the overall team placement. Overall team placements will not be posted. The first place winner will be asked to represent our region by attending the National competition. Congratulations for participating and Good Luck!



III. PROBLEM SCENARIO

(Competing schools will represent a Project Team that must evaluate the following project.)

Your company is responding to a Request for Proposal issued by the City of San Jose. The project is named Central Service Yard. This is a modified designbuild project and the bridging documents, completed by an architect under a separate contract with the City, have been issued. Your team is to develop a lump sum bid proposal to submit to the City. For the purposes of this Student Competition, the drawings included are the final construction documents produced by the actual design-build team, but should be considered as the preproposal bridging documents.

Upper management has asked your team to establish the budgets based on the current design and validate the schedule of the project as you prepare to submit the proposal. You must submit documentation to them by midnight tonight and you will be asked to present your findings in a meeting with your upper management tomorrow. Interim progress meetings are scheduled for 10:00 AM and 2:00 PM today (Thursday, February 14, 2008). Any questions should be delivered, in writing on the Request for Information form (RFI), to the management team at the 10:00 AM meeting. Response to these RFI's will be provided at or before the 2:00 PM meeting. The RFI form is provided in Section XI. The 2:00 PM meeting will be for verbal questions and answers only.

Please note that some of the written questions do not fit into the "preconstruction" scenario (i.e.-they occur later during construction), consider these "time warp" and answer them with that understanding. This is to challenge your team on the full realm of construction issues.

For the oral presentation on Friday, all teams shall include students representing the company's Project Manager, Project Superintendent, Project Estimator, Project Engineer, Office/Field Engineer and Safety Director. The 30 minute presentation should allow for 20 minutes of team presentation and 10 minutes of questions and answers.

Your presentation should at least touch on the following topics;

- Cost
- Schedule
- Site Utilization
- Quality
- Safety



IV. PROJECT INFORMATION

Your firm has decided to pursue work for the City of San Jose. As this is the first Design-Build project for the City of San Jose, it is the perfect chance for your firm to create a relationship with them that will facilitate future project opportunities.

Your team is proposing on the construction of two 31,000 square foot buildings, the renovation of a 26,000 square foot existing building and site improvements for the City of San Jose's maintenance facility. The project site is approximately 6.5 acres and is adjacent to the current facility. One of the new buildings, Building F, will house the City's vehicle maintenance shops. The other, Building G, will have offices, storage space and shop areas for the City's maintenance departments. The renovation of Building B will create additional storage and work space for departments that are currently housed off-site. Site improvements include: construction of a vehicle wash area, covered parking for City maintenance vehicles, the addition of reclaimed water lines to the site for landscaping and other practical uses, installation of two dual vortex separators and paving of entire site for parking.

Buildings F and G are metal buildings. The vehicle wash (Building H) and the covered parking / bunkers have metal canopies covering them. Building B is an existing concrete structure with a truss roof system. Currently the site is vacant and has not been cleared of vegetation.

The project is to be complete with design and construction within 17 months upon receipt of Notice to Proceed.



V. PROBLEM OUTLINE

Structure and tab your documentation according to the following outline. Include only the information requested in **Section VI. Submission Requirements.**

- 1. General Summary
- 2. Estimate
- 3. General Conditions
- 4. Proposal Summary (Tab Analysis)
- 5. Schedule
- 6. Coordination of Work
- 7. Personnel Issues
- 8. Safety
- 9. Site Utilization
- **10. Unforeseen Site Condition**
- 11. Quality Control
- 12. Bonus Legal
- 13. Bonus Green Building

Team Member Resumes



VI. SUBMISSION REQUIREMENTS:

Please note that some of the following questions do not fit into the time frame of the Problem Scenario described earlier (i.e.-they occur later in the construction phase), consider these a "time warp" and answer them with that understanding.

0. QUALITY OF SUBMITTED PROPOSAL

The appearance and organization of proposals is important in the construction industry as it is often our first opportunity to interact with a new Owner and / or impress the upper management in our company. We want them to see the professional image we are trying to portray and be able to find and understand the information we are presenting. Points will be awarded in this section based upon the appearance and organization of your team's submitted response to the following problems.

Please be aware that all copies of the submission should be complete – if you have large items such as schedule plots or site utilization plans that can not be reproduced for each book, then place them in one book and MAKE NOTE IN THE REMAINDER OF THE BOOKS REFERENCING WHERE THE INFORMATION IS. LABEL THE COVER OF THE BOOK CONTAINING THE UNIQUE INFORMATION TO NOTE THAT IT IS SPECIAL.

1. GENERAL SUMMARY

You are finalizing the estimate to determine the bid price that you will recommend to your upper management. The General Summary form has been filled out with values for the items that have already been analyzed and summarized, but you are taking bids on a few of the remaining trades, finalizing your concrete and drywall estimates, and estimating your General Conditions. You must plug the values for these last items into the General Summary, and determine what the bid price of the project should be. Given the design-build nature of this project it is appropriate to carry a contingency budget to cover unforeseen conditions which will develop as the construction documents evolve and are finalized. Due to a robust economy in San Jose, many of your competitors are too busy to bid, leaving only your company and two (2) other firms to bid on the project. This market condition should be taken into consideration as you review your approach to margin on the project.

2. ESTIMATE

Concrete Estimate

Your company has an outstanding reputation for performing concrete work on their projects, and this is an opportunity to perform some self work and keep some valuable craft employed. The total cost of all the concrete work will have a



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direct impact on your final bid. Use the bridging documents to quantify all of the project's concrete, specifically:

- Foundations (Footings and concrete wall footings)
- Slab on grade (Building slabs, thickened slabs and depressions)
- Mechanical Pads/Curbs
- Car Wash Slab (Building H)
- Bunker Enclosures
- Site Concrete including: Vertical Curb, Curb & Gutter, Valley Gutters and the driveway at the Parking Lot

Each area shall include costs for concrete material, forming, placing, finishing and curing. All asphalt paving, excavation, removal of spoils, reinforcing steel, concrete accessories, site specialties including wheel stops, and saw cutting shall be subcontracted and therefore not included in your estimate. General Conditions for the concrete scope of work are including in your overall estimate on the General Summary.

The Supplemental Information, Section XI, contains an Excel spreadsheet that has been formulated for your use in compiling this data in the same format as the other teams. You are to fill in the quantity, unit costs, and the Fee % on the attached Concrete Estimate Spreadsheet. Because the delivery method of this project is modified design-build, the fee for the concrete will also include all contingency money to cover the risk of added scope incurred between the bridging documents which are the basis of the quantity takeoff and the final construction documents. DO NOT add items of work to the Concrete Estimate Spreadsheet. In addition, use the attached COST DATA SHEET as the source for labor, material, and equipment. Discuss internally with your project team and decide the percentage of fee to be included in this estimate which will include contingency money to cover additional scope added during the design period. Attach a written justification for the chosen percentage applied to your concrete estimate and be prepared to discuss your team's reasoning in the presentation of this project. Upon completion of this work and when all blank spaces have been filled in, the costs will need to be totaled and carried over to the concrete line items for labor, material and equipment on the General Summary. Be sure to round your numbers to the nearest \$1,000.

Clarifications:

- In order to keep all of the teams' estimates consistent, do not include additional material to account for concrete waste. Assume this is already covered in the unit costs based on company historical data.
- Do not include any concrete for building B in your estimate.
- Assume depressions at restrooms to be 3" deep.



- Assume no formwork at footings.
- Do not assume that a pump is required for placing concrete at all locations.
- The concrete quantity takeoff is to be done with the ½ size drawings provided for the competition. These drawings are not full size and scale. Be sure to take this into account when scaling the drawings.

Drywall Estimate

There has been little interest shown by bidders regarding the drywall scope of this project. One of the subcontractors that your company works with frequently has expressed interest in the project but has told you that they do not have the resources to perform a takeoff. They tell you that they will give you their unit costs which you can use to determine an estimate. Therefore, your team will need to perform a quantity takeoff of the drywall scope of the project. The drywall scope includes:

- framing and gypsum board for partitions
- framing and gypsum board for ceilings
- plywood wall coverings

The Supplemental Information, Section XI, contains an Excel spreadsheet that has been formulated for your use in compiling this data in the same format as the other teams. You are to complete the Gypsum Board Assembly Spreadsheet by filling in the appropriate wall types, quantities and unit costs (make sure to reference the Cost Data Sheet from the subcontractor) needed to calculate the total cost. When all costs have been determined, the total cost will need to be carried over to the Drywall line item on the General Summary.

Clarifications:

- It is customary to ignore door and window areas while completing a quantity takeoff for framing and drywall. Therefore, do not remove door and window areas from total wall areas.
- As it would be quite time consuming to calculate the true wall areas for wall type 'A,' as these walls follow the slope of the roof, it is necessary to use an average wall height in the quantity takeoff. The average wall height that shall be used is 20 feet.
- Plywood shall be installed no higher than 8'-0" A.F.F.

3. GENERAL CONDITIONS

General Conditions are the on-site project management and supervision costs incurred throughout the duration of the project.



Your team is assigned to prepare a detailed breakdown of the project's General Conditions. This breakdown will allow upper management to confirm your staffing plan, mobilization, operating, and other resource costs that will be spent during the project.

The Supplemental Information is attached in Section XI depicting descriptions of staff responsibilities and a list of company historic billing rates and typical job costs.

Please note the following:

- A. General Conditions include salaried on-site and off-site personnel that are assigned to the project. Included are all operating costs and expenses that are a function of on site job supervision. These expenses include but are not limited to office documentation support, networking service and fees, utilities, cellular phones, computers, etc.
- B. Home-office overhead (G&A) is not included in the General Conditions of the project. However, since this is a design-completion project, your team will need the assistance of the estimating department. The estimating staff that will be dedicated to the project will assist the design team and owner with design completion, and directly assist the project manager with subcontractor bid packaging, scope breakdown, purchasing, and contract issuance.
- C. Many, but not all of your employees are coming from jobs in the same general area and will not need to be relocated when starting on this project.
- D. Supervisory staff positions should be allocated to the project as the team sees fit.
- E. This project will be assigned a summer intern. All costs associated with moving and housing are provided by the jobsite office.

Please prepare the following documents:

1. Prepare a detailed General Conditions budget for the project using the form provided (Section XI.3.1) As you breakdown the costs and units for each budget item provided in Section XI.3.3, be mindful that items may be comprised of labor, material, equipment or any combination of all three. Use your best judgement, team experience or available resources to determine these break-downs and load your budget.

2. Prepare a Staffing Matrix showing the duration and period each staff member is on the project on the form provided (Section XI.3.2). Staff descriptions are provided in Section XI.3.4.



HENSEL PHELPS CONSTRUCTION CO. Page 11 of 29 3. Upon completion of the General Conditions budget, identify the three (3) individual items in your budget that your team feels are at the highest risk of overrun if left unchecked as the job progresses. For each of these items, provide a short narrative of why you feel they are so risky and how your team plans to manage this risk.

4. (TIME WARP TO 6 MONTHS PRIOR TO PROJECT COMPLETION). The project is on schedule and The City has approached management about possibly changing Paint Booth equipment manufacturers. The new equipment would arrive 3 months later than anticipated, thus delaying turnover of Building B by 3 months. Assuming Building B will be the only structure affected by this delay, develop a General Conditions budget proposal and Staffing Matrix for this condition on separate forms. Justify your reasoning with a written narrative. The owner will review your GC budget, staffing matrix and narrative to decide whether the expense can be justified.

4. PROPOSAL SUMMARY (TAB ANALYSIS)

During today's bid, you are assigned the responsibility of closing the proposal summaries for the following trades: Concrete Reinforcing, Masonry, Flooring, Ceramic Tile, and Pre-Engineered Buildings. In order to arrive at the value to be plugged into the General Summary for these trades, you must "tab up" the quotes of the subcontractors for each trade to determine the most advantageous price to use. The Proposal Summary sheets have been created and "check guestions" written on them to determine if the subcontractors have the correct scope per plans and specifications (you may find that additional "check questions" are necessary to define the complete scope or differentiate between bidders; you are free to add "check questions" as you see fit). Choose your subcontractors carefully to ensure that they will perform the correct scope, staff the project adequately, and that they are financially stable. The company policy is to require bonds on all subcontractors with subcontract values over \$50,000 unless the District Manager approves to not bond them. You will be able to speak to representatives of each subcontractor briefly to ask scope questions not included in their proposals (total 10 minutes per team) when they visit your room between 5pm and 7pm. An example tab has been included in your packet for reference.

Note: We encourage teams to tabulate quote items by rounding to the nearest \$1,000 for each entry; this allows quick summation of the proposal summaries.

5. SCHEDULE

Just as complete and concise Construction Documents serve as the "road map" as to WHAT you are contracted to build, a complete and concise schedule



serves as the "road map" as to HOW you are planning to build it. As part of your review with management, you will be required to present a complete, workable Critical Path Schedule (CPM) that effectively communicates your plan. The project consists of multiple buildings and has a phased turnover where specific elements of the project are required to be turned over to the Owner prior to other elements beginning. Management is concerned with the "phasing" of the project and wants to know how the different phases will impact the overall construction schedule. In turn, your schedule presentation, written and oral, will be comprised of (1) building a CPM, (2) presenting an overall site "phasing" plan, and (3) a detailed schedule/plan showing the interior construction of Building G. Project Specification Section 01110 found in the Supplemental Information and the following criteria explain the background information and requirements of the CPM schedule your team will present.

- 1. General CPM Schedule Criteria:
 - a. Presentation Criteria:

i. Format:

 At a minimum, show Activity ID, Activity Description, Original Duration (OD), Early Start (ES), Early Finish (EF), Total Float (TF) per activity (see Figure "A" below):

Figure A

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	F	MAR	APR	MAY	JUN	2008
Reno Competition - San Jose Central Service Yard									 	1	
Design & Preconstruction									l	1	
01000	Notice to Proceed	0	03MAR08		0		Notic	to Pro	ceed		

- ii. Activity count: 1 1,000
- iii. Show the logic from Notice to Proceed to submittals to fabrication and delivery activities to execution of the required scope including Owner move-in.
- iv. Clearly identify the critical path of the schedule.
- v. Organize your activities so they are easy to read, activities are grouped intuitively and the schedule "flows" well. Your logic should follow the site phasing plan and Building G interior construction plan you will be preparing.
- b. Contractual Criteria:
 - i. Project Start Date (Notice-to-Proceed or NTP): 3/3/08
 - ii. Design Review for Permit Drawings: 2 weeks per submission
 - iii. Owner turnover of Hazardous Materials Site: 3/2/09
 - iv. Project Completion: 7/31/09
- c. Design Durations:
 - i. Site Grading and Demolition: 4 weeks from NTP



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- ii. Structural Foundation and Metal Buildings: 6 weeks from NTP
- iii. Underground Utility: 8 weeks from NTP
- iv. Building Interior and Life Safety: 12 weeks from NTP
- d. Other Requirements:
 - i. Metal Building Duration: 10 weeks per building
 - ii. Installation of 2nd Metal Building can begin 5 weeks after start of the 1st Metal Building.
 - iii.Minimum Milestones to be presented on CPM Schedule:
Building B CompleteNotice To ProceedBuilding F CompleteStart ConstructionBuilding G CompleteFinal CompletionSitework CompleteStart Construction
- 2. Overall Site Phasing Plan Criteria:
 - a. Due to the fact that this project has a "phased" turnover, management is requiring a detailed "phasing" plan. The site phasing plan will define the planned sequence of construction through the project site.
 - b. The phasing plan should visually represent your plan so it can be communicated to others.
 - c. A brief narrative of the phasing plan is required to be submitted with the visual representation. The written description should explain the logic/reasoning behind how you "phased" the sitework.
- 3. Building G Interior Schedule:
 - a. As management has reviewed the construction documents, it has been realized that the path of construction through the interior of Building G will be challenging. In an effort to help clearly represent how the different trades are to move through the interior space of this building, you are required to submit a detailed schedule that shows how and when the different construction trades will move through the building from framing through paint.
 - b. Your schedule should identify which trades will be in a specific area and the dates they will be there.
 - c. Be creative (visual aids often help!). Remember that a detailed schedule is a tool you will be using to help you clearly explain the construction sequence to your staff, subcontractors, and Owner.
- 4. All Other Work Criteria:
 - a. The majority of the work will be handled by subcontractors. Your team will coordinate and manage the subs.
 - b. As part of the construction contract, your company is required to move the Owner into their new buildings.



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- c. Scheduling of all work and the phasing plans should support the assumptions made by the Site Utilization Plans drafted in Section 9.
- d. Review the plans thoroughly. Ensure that your schedule encompasses as much of the work as possible in the limited activities you are required. This will take some creative thought and a little finesse.
- e. Your team may begin construction anytime, provided you have achieved at least 1 approved submittal before you begin work. Therefore, based on your scheduling, determine which of the submittal packages should be prioritized to begin work as soon as possible. Also, identify your office setup & mobilization on site.
- f. The last activity in your schedule should be Final Completion.

General Schedule Comments:

- 1. Do not resource load, man load, or cost load your schedule.
- 2. Thoroughly review the documents provided with regards to schedule. The phasing of construction work is arbitrary; however, there are specific requirements which necessitate one element taking priority over another element. Note that some of the construction phases may overlap, and concurrent work may take place. However, any such decisions must keep in mind the specific project requirements identified in Section 01110 of the Project Specifications (see Supplemental Information), safety, productivity, potential conflicts and "common sense" work sequencing.
- 3. When it comes to scheduling, there are no right or wrong answers. However, the schedules that are taken seriously by your staff, owner and subcontractors and end up succeeding are the ones that make sense. Ensure that your team can substantiate and explain all the assumptions and decisions made in the process of drafting your schedule.

6. COORDINATION OF WORK

(TIME WARP TO LATER IN THE PROJECT DURING CONSTRUCTION)

The owner has informed you that they will be performing the painting scope of work for this project. As the general contractor you are very concerned with having to manage the owner as a subcontractor.

Prior to work beginning:

1) Please generate a list of potential benefits and/or problems that you feel apply to this situation.



2) A pre-construction meeting has been set up with the owner to discuss the future scope of work to be performed. Please provide an agenda for this meeting, addressing the possible problems listed in question #1.

3) Time Warp (Not long after painting has begun): As the painting is proceeding, your drywall sub comes to you complaining that the painter is not sanding after priming, and is applying paint too thick. The result is swelling of taped seams, and a bad finish. This makes the drywall subcontractors work appear sub-par. After expressing your quality concerns with the painting foreman at the weekly foreman's meeting, it is obvious that the foreman plans on making no changes to the way he is running his painting operations. Provide an explanation of how you plan to deal with the non-responsive foreman on his poor quality of work. Keep in mind that you have a good working relationship with the City of San Jose, and do not want to do anything that would compromise future work with the City.

7. PERSONNEL ISSUES

(TIME WARP TO AFTER CONTRACT AWARD)

You are the Project Engineer for the project and responsible for three Office Engineers. One of your Office Engineers, Tom Johnson, came into your office on Monday morning and told you that he saw Jerry Peterson, the most senior Office Engineer on the project, using illegal drugs the past two weekends. You are confused. You would never assume that Jerry would be using illegal drugs, nor have you noticed any changes in his job performance. In addition, Jerry is on the verge of a big promotion to Project Engineer; which will allow you to move into an Area Superintendent role. As an Area Superintendent you will receive a company truck and a handsome raise. You want to do the right thing for the company, the project, and your future. What do you do?

Attached is the Company Substance Abuse Policy. Please answer the following questions.

- 1. Describe four possible courses of action.
- 2. What course of action would you take? Fully describe the course of action and why it is the best possible course of action for the company. If you referenced the Substance Abuse Policy, please identify all of the sections that were referenced.

8. SAFETY

(TIME WARP TO AFTER CONTRACT AWARD)

You are a newly promoted Area Superintendent that has just been assigned to the Central Service Yard project. Your project Superintendent has assigned you



with the task of completing a Job Hazard Analysis for the erection of the preengineered buildings.

Prior to sending you on your way to execute this task he informs you that the correct way to execute the JHA is to use the Hensel Phelps Construction Co. form no. C04.01. Once the form is complete; a meeting will be scheduled with the subcontractor to review the hazards that will be encountered.

1. Using the attached form C04.01 complete the columns labeled "Unsafe Condition, Action, or Other Hazards" & "Prevention or Correction Action That Will Be Taken" for the following "Activities/Operations":

- a. Personnel
- b. MSDS (Material Safety Data Sheet) MSDS
- c. Lifting
- d. Drinking Water
- e. First Aid Kit
- f. Hand and Power Tools
- g. Ladders
- h. Equipment Operations
- i. Rigging Equipment
- j. Hoisting Heavy Loads
- k. Excavations
- I. Rebar
- m. Welding and Burning
- n. Gas, Oil, Chemicals
- o. Barricades and Hole Covers
- p. Scaffolds
- q. Housekeeping
- r. Tool-Box Meeting (Daily)
- s. Fall Protection

2. What are the fall protection requirements for Iron Workers while connecting on a job this size? (Hint use calosha requirements, <u>www.dir.ca.gov</u>)

9. SITE UTILIZATION

Currently, the City occupies five (5) buildings on the site which was formerly the Beechnut Baby Food Factory. The actual 6.5 acre construction site (shown on page C5.0) is presently vacant except for the storage of used city vehicles/equipment and occasionally being used by police-canine units to train. The Site Utilization Plan should show how the site is organized from where the trailers and laydown areas are located to the mundane circulation of the site. For this project, the construction trailers can be staged within the new construction area or the client may allow for the trailers to be staged outside of the construction area if they do not impact the City's current daily activities and if a rental fee is paid.



Each team will design a Site Utilization Plan that takes a snapshot in time. Instead of asking for a generic plan for any time period during the 17 month project, we are asking each team to consider their schedules and design a plan that is applicable from June 15 to August 15, 2008. This will allow for all the plans to be some what uniform but at the same time still giving each team enough latitude to be innovative and resourceful.

Though any of the permit drawings may be used to develop and explain your site utilization plan, civil sheet C5.0 shows the entire construction area and boundaries. Below is a minimum set of points we would like for each team to address, but feel free to add more line items to fully explain your position as your project evolves or changes. Also, make sure your plan follows a logical coordinated progression and does not contradict any code requirements, but shows foresight of future work activities.

Points to address:

- 1. Location of the project office
- 2. Location of the jobsite information/bulletin boards
- 3. Location of the Mechanical, Electrical and Plumbing subcontractor trailers
- 4. Location of the temporary fencing and access gates
- 5. Required signage
- 6. Circulation and access routes for material deliveries
- 7. Temporary storage and laydown areas for trades on site
- 8. Location of toilets and wash stations (assume a max. of 75 craft personnel on site, 1 toilet for every 20 workers/1 wash station at each location)
- 9. Emergency Evacuation Gathering Area(s)
- 10. Location of temporary utilities for construction use (i.e., metered water and power)
- 11. Garbage/location of dumpster(s)

Phased Site Utilization Plan:

There are two important phases of work that may impact the turnover and schedule of the entire project if not diligently addressed. The first is the Hazardous Waste turnover and the second is the work in Bldg B. Due to the proximity of both of these areas to adjacent buildings, they could affect the new or existing work activities taking place. Show a site utilization plan for one of the two areas addressing points 4, 5, 6, 8, 9 and 11 above.

10. UNFORESEEN SITE CONDITIONS

(TIME WARP TO LATER IN THE PROJECT DURING CONSTRUCTION)

In this scenario your team is near the completion of Building F. There is only one thing standing in your path to turning over Building F to the Owner – the State



Health Department permit. Your team has worked feverously over the last few months to obtain the Health Department permit. The Municipal Water Department, whom is responsible for submitting your plans to the State Health Department, has rejected your plans for the third time based on minor descriptive wording, labels, etc.

The Health Department permit is vital because without it you cannot make the final connections to your reclaimed water loop. The reclaimed water loop happens to supply water to both the toilets inside Building F & G and the surrounding landscape irrigation system. The City of San Jose requires the reclaimed water system to remain an integral part of the project to earn points towards the LEED Silver certification. So ultimately the system needs to remain and function as designed.

While the Owner will probably agree to occupy the building without landscape water, they will certainly require operable restrooms for their staff. Faced with the dilemma of not having functional toilets and a looming completion date waiving over your head, your team has to make a decision to solve this problem. And make it Fast!!!

- 1. As a team decide on three options to solve this problem.
- 2. Evaluate the pros and cons with each of the options. Identify whether the options have potential cost or schedule impacts.
- 3. Which option has your team decided to pursue? Explain your reasoning.
- 4. Based on your response to #3, how does your decision impact the relationship between Hensel Phelps and the City of San Jose (Owner)? Keep in mind you still have to complete the remaining buildings on the project.

11. QUALITY CONTROL

(TIME WARP TO LATER IN THE PROJECT DURING CONSTRUCTION)

You are the Project Manager on-site. The project has been going on for approximately 10 months. You are pleased with the relationship you and the owner have had. On your monthly partnering jobsite walk with the owner, the owner's representative points to the pre-engineered building you have provided for him and says," Hey Mr. HPCC project manager, why are these exterior panels a different color than what I requested?" Calmly you respond; "Well let me look into it and I will get back to you."

You head back to the jobsite trailers and sit your Project Engineer and Office Engineer down to determine what happened. You find out that during the submittal process the shop drawings and product data have been approved as noted. You review the submittal notes and find only structural and other architectural comments and nothing relating to the color of the exterior panels. In



further discussion with your Project Engineer, you find out of an Owner Change Directive which involved multiple changes including upgrades to the interior finishes, mechanical and electrical upgrades and a clearly defined color change to the exterior panels of the buildings in question.

Your Project Engineer tells you that the Change Directive in question has been negotiated with the owner and change orders have been issued to all subcontractors involved; including the pre-engineered building subcontractor. Further research reveals that the pre-engineered subcontractor provided a zero cost to change the color of the panels under the condition that written direction is issued prior to fabrication. In the correspondence issued to the pre-engineered building subcontractor you find clear direction from HPCC and the Owner to proceed with the change.

It appears that a lot has transpired to where the current field condition stands. The pre-engineered subcontractor is currently notifying you that if the color of the panels needs to be changed from what has been erected; the cost of the replacement would total roughly \$60,000.

Please respond to the following questions:

1. Where did the quality control system fail?

2. What could have been done different to avoid the current exposure of added cost?

3. Who is responsible for any cost required to correct the current condition (\$ 60,000 + overhead)?

CHOOSE ONE AND EXPLAIN:

- a. Owner
- b. Hensel Phelps Construction Co.
- c. Subcontractor
- d. All of the above

BONUS QUESTIONS

Bonus points will be awarded for responses to the following questions.

12. BONUS - LEGAL

(TIME WARP TO AFTER PROJECT COMPLETION)

Your company has completed the Central Services Yard for the City of San Jose, which is now in full time use by the city workers (95% male / 5% female). The worker's union filed a grievance under Title 8 (Workforce Safety Code) with the City of San Jose because there were not sufficient male bathroom facilities designed and constructed. The City of San Jose has taken the stance this is your



companies issue and has requested your immediate action to resolve the lack of male bathroom facilities.

The Central Services Yard is a design build project. The Contract includes a set of bridging documents from which your company used for the basis of design. These documents showed the bathroom facilities being a 50/50 male to female ratio which is per the plumbing code.

State your company's position in a letter on how to resolve this issue and if bathroom facilities need to be added, who will incur the costs.

13. BONUS - GREEN BUILDING

For the purpose of this question time wrap several months into the project. The structure and MEP trades have been bought out. You are working on finishing buyout for the project and are now focusing on the finish trades. The contract with the Owner requires that the project be LEED Silver under LEED v2.1. The Owner has now asked you what it would take to achieve LEED Gold on the project.

The LEED Scorecard provided on the Reference CD shows the current status of the LEED points considered to have been achieved, still possible, and not achievable. Currently the project has documented 29 credits toward achieving LEED Silver. Several more credits are needed to achieve LEED Silver as required.

The LEED Scorecard has three columns next to each credit. All credits with a "1" in the green column are considered achieved. All credits with a "1" in the yellow column are considered possible. All credits with a "1" in the red column are considered not achievable.

Update the LEED Scorecard so that you know what credits are needed to fulfill your contractual requirement of LEED Silver. In one paragraph state why you selected those credits to fulfill your contractual requirement.

Now update the LEED Scorecard to show the Owner what credits you would achieve to obtain LEED Gold for the project. Draft a short letter to the Owner explaining why these credits were selected. If you feel this will result in added costs to the project please state this in your letter and briefly explain your position. Do not attempt a takeoff to provide an estimate or rough order of magnitude.

Note: All credits listed as achieved or not achievable on the Scorecard provided should not be changed; doing so will result in a deduction in your score.



TEAM MEMBERS RESUMES

Provide each team members personal resume (**not** a resume tailored to this problem).



VII. COMPETITION SCORING SYSTEM

Item	Description	POINTS		
0.	Quality of Submitted Proposal	2		
1.	General Summary	4		
2.	Estimate	20		
3.	General Conditions	14		
4.	Proposal Summary	18		
5.	Schedule	22		
6.	Coordination of Work	6		
7.	Personnel Issues	6		
8.	Safety	6		
9.	Site Utilization Plan	10		
10.	Unforeseen Site Conditions	6		
11.	Quality Control	6		
Subto	otal	120		
Oral Presentation		80		
GRA	NDTOTAL	200 POINTS		
Bonu	s Questions:			
	12. Legal	6		
	13. Green Building	6		

Note: 1 Point will be deducted from the total score for every minute past the deadline time.



VIII. LIST OF JUDGES

Oral Presentation Judges:

Charles Simmons, Operations Manager (408) 452-1800 csimmons@henselphelps.com

Scott Bills, Project Manager (408) 452-1800 sbills@henselphelps.com

Mike Bergevin, Superintendent (408) 452-1800 mbergevin@henselphelps.com

Ryan Piper, Project Engineer (408) 452-1800 rcpiper@henselphelps.com

Monica Carl, Office Engineer (408) 452-1800 mcarl@henselphelps.com

Gerlonnie Moore, Project Engineer (949) 852-0111 gmoore@henselphelps.com

Alternates:

Julio Vasquez, Area Superintendent (949) 852-0111 jvasquez@henselphelps.com

Sandra Ichiho, Project Manager (949) 852-0111 sichiho@henselphelps.com

Administrator / Timekeeper: Rod Hammett, Project Manager (949) 852-0111 rhammett@henselphelps.com Hensel Phelps Construction Co. 226 Airport Parkway, Suite 150 San Jose, CA 95110

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IX. THE RULES

The rules for the competition are designed to provide each team with an equal opportunity to apply their knowledge in developing their respective solutions and an equal opportunity to present their solutions to the panel of judges. The following rules apply to the Commercial Division and serve to supplement the ASC Competition Rules.

- Rule No. 1 While the competition is in progress, only the six students identified as being team members shall be present in the teams' room(s). Faculty advisor(s) may not interface with their team once the competition has begun.
- Rule No. 2 Six (6) Copies of the proposal must be turned into the judges. <u>No</u> <u>proposals will be formally returned.</u> If you desire a copy for yourself or need one for your oral presentation preparation, please make copies prior to the submission of the proposal. Some proposals may be available for students to re-claim at the conclusion of the competition.
- Rule No. 3 The number of computers per team and use of internet is to be as outlined in the ASC Competition Rules. One LCD projector and a laptop computer will be supplied by Hensel Phelps for each team to use during their presentation. Any additional equipment required for a presentation is the responsibility of the team. If your presentation requires specific software you must provide your own computer. Time to interface to the LCD projector will be allowed. Overhead transparency projectors are not provided unless requested in advance.
- Rule No. 4 Attendance at other school's oral presentations is subject to the rules of the ASC (currently under consideration to be revised from past years' rules), but in no case shall members of a school that has yet to present be allowed to attend another school's presentation. This rule extends to all students and faculty members from the participating school, whether team members / coaches or not.
- Rule No. 5 The problems that are used for the competition are drawn from actual construction projects. In the past there have been situations where student team members have worked on, or have knowledge of, the project that is the subject of the problem. This can be perceived as giving the team an unfair advantage in developing a solution. If, upon receiving the problem, any student recognizes the project that is the subject of the problem statement, the student shall notify the problem sponsor to discuss the student's project or problem knowledge. Alternates may be considered should there be an identified conflict. The Board will have the final decision. Failure



to notify the problem sponsor makes the team subject to disqualification.

- Rule No. 6 All decisions of the judges are final.
- Rule No. 7 A one half point deduction will be taken for each minute the proposal is turned in past the time it is due. Written proposals are due February 14th, 12:00 Midnight. Location of Bid Delivery will be announced at pre-bid conference. Other deliverables items will be due as specified elsewhere here in.
- Rule No. 8 Any team with graduate students can participate in the regional competition. However, the national level prohibits graduate students to participate on the team. The invitation from Region VII for the national competition will be from the highest placed team NOT containing any graduate students. If it is your team or school goal to go to the National competition please do not include graduate students on the team.
- Rule No. 9 Presentation materials for all teams are to be turned in to the judges prior to the first interview, by 9:45 AM on Friday, February 15th. No other presentation material will be allowed into the presentation that is not turned into the judges by this time. NO EXCEPTIONS WILL BE ALLOWED.
- Rule No. 10 NO Phone calls or emails may be made to the Owner, Construction Manager, Architect, Civil, or Structural Engineer, or any other design consultants listed on the Drawings. They are aware no team is to contact them and have been directed to alert the judges; a FIFTY (50) point score deduction for each such contact will be made.
- Rule No. 11 The judging panel has worked with your "company" for many years. You are therefore asked to not include extra peripheral information about your company such as safety plans, company profiles or other marketing materials. Please limit your response to the information requested and resumes of each team member. Failure to do so may decrease your score.

Any team observed violating these rules might be asked to withdraw from the competition.



X. COMPETITION EVALUATION FORM

Please have each team member complete this evaluation form and return it to the judges prior to the Debriefing on Friday @ 6:30 PM. Your comments are important and past participant's comments and evaluations have been incorporated into the continuing development of the Commercial Building competition. The ticket to gain access to the debriefing is this evaluation form. Each team member MUST fill this out and return it. This evaluation form is intended to better this competition in the years to come. Use the backside of the evaluation form for more space / comments.

Rate each category using the following evaluation scoring system: Include any comments below the line item.

- 1. Poor
- 2. Needs Improvement
- 3. Average
- 4. Good
- 5. Excellent

- 1. How much of the financial burden of this trip was paid by the students (not including entertainment and gambling) on a percentage basis?
- 2. What was the most difficult component of the problem statement?
- 3. List any recommended changes to the competition rules. Include how to implement your recommendation.



- 4. Was there enough time to complete the package?
- 5. What time did your team complete the written portion of this package?
- 6. List three positive things about this years' competition. Does not have to be Commercial team specific.
- a). _____
- b). _____
- c). _____
- 7. List three negative things about this years' competition. Does not have to be commercial team specific
- c). _____
- 8. On a scale of 1-10, (ten being the best) how would you rate this year's competition?

Use backside of form for additional comments. THANK YOU! – THE JUDGES and HENSEL PHELPS CONSTRUCTION CO.



XI. SUPPLEMENTAL INFORMATION

- 0.1 Bridging Document Drawings
- 0.2 Request for Information (RFI) Form
- 1.1 General Summary Spreadsheet
- 2.1 Concrete Cost per Unit Data Sheet
- 2.2 Concrete Estimate Spreadsheet
- 2.3 Drywall Cost per Unit Data Sheet
- 2.4 Drywall Estimate Spreadsheet
- 3.1 General Conditions Spreadsheet
- 3.2 Staffing Matrix Spreadsheet
- 3.3 Company Historical General Conditions Rates
- 3.4 Staff Position Duties
- 4.1 Proposal Summary Forms
- 4.2 Subcontractor Proposals
- 5.1 Specification Section 01110
- 7.1 Substance Abuse Policy (Electronic only)
- 8.1 Job Hazard Analysis Form
- 13.1 LEED Score Card

