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Region VII- Commercial Building Division
February 7-10, 2007

Answer Package

UC Irvine Bren Hall
Irvine, CA

Prepared By:

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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. **Technical Proposal**
3. **Concrete Estimate**
4. **General Conditions**
5. **Proposal Summary (Tab Analysis)**
6. **Schedule**
7. **Coordination of Work**
8. **Personnel Issues**
9. **Safety**
10. **Site Utilization**
11. **Unforeseen Site Condition**
12. **Quality Control**
13. **Bonus - Legal**
14. **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.

Proposals should be neatly assembled in a binder of adequate size. Your team name (school) should be easily found on the cover, spine and front sheet. Tabs should be neatly labeled in the order as indicated in the Problem Outline. Formats of work product from tab to tab should be relatively consistent. Utilizing the Owner's logo or graphics on the proposal is always a nice touch to show you understand who your client is and are preparing your submission for them.

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 estimate, and estimating your General Conditions. You must plug the values for these last items into the General Summary, review your approach to fee, and determine what the bid price of the project should be.

Please reference the attached 'General Summary' spreadsheet. The "hard" values that were left to include in the spreadsheet come from the General Conditions exercise, Concrete exercise and Tab Analysis exercise and as such are subject to how you approached those sections. The Margin line item is quite subjective, with no right or wrong answer within a range. The range that most General Contractors bid work of this type would be in the 3% to 7% range, unless market conditions force, or allow, fees to deviate from that (very competitive markets may force fees below 3%, while lots of work and lack of competition may allow fees above 7%).

2. TECHNICAL PROPOSAL

The award of this project by the University is based upon a Best Value criteria. This is established based upon the combination of bid price and technical qualifications, therefore it is very important that we convey to the University what sets us apart from the competition. The technical submission requirements include detailed backup for design-build approach, project schedule, quality control plan, site utilization / coordination with operating facilities and students, staffing, safety and sustainable design. The technical submission also requires an Executive Summary of the proposer's approach to this project. This Executive Summary is to be not more than 1 page in length and should summarize the technical submissions and include any other information necessary to convey to the University why the proposer should be selected for this project.

Much of the information requested for the technical proposal will be included in the answers to other sections of this problem. For this task you are to write the Executive Summary statement. Include references to other areas within your submission where the expanded backup information can be found. Some of your references will be to backup which you are not including for the student competition, but are referencing with the assumption that it has been written, such as design-build approach, etc.

See attached Technical Summary document.

3. CONCRETE ESTIMATE

Your company has an outstanding reputation for performing the concrete work on their projects, and this is an opportunity to perform some self work and keep some valuable craft people employed. The total cost of all the concrete will have a direct impact on your final bid. The concrete to be included in your price should include:

- Foundations (Footings and concrete wall footings)
- Slab on grade (Building slabs, elevator pits, lecture room stepped seating, depressions)
- Columns
- Exterior Concrete walls
- Concrete Shear walls
- Concrete beams
- Cast in place decks
- Metal Pan Stairs
- Mechanical Pads/Curbs
- Slab on deck at roof

Each area shall include costs for forming, placing, finishing and curing. All excavation, removal of spoils, reinforcing steel (including Post Tension Tendons),

concrete accessories, saw cutting, exterior sandblasting and site concrete shall be subcontracted and therefore not included in your estimate.

Typically, your company self performs concrete work on most of its projects; however, management will consider "selling" the concrete work if it makes the overall project bid more competitive. You know that none of the other general contractors bidding this project self perform their concrete. Even though no subcontractor quotes are expected, the concrete scope of work should be quantified and bid so that it can be evaluated against subcontractor bids, if received, for this same scope; therefore, the concrete general conditions and fee in this estimate are in addition to the Project General Conditions. Supervision for the concrete work is separate from the overall project and should be priced accordingly. Therefore, the concrete spreadsheet contains line items for supervision, field engineering, surveying, storage bins, and miscellaneous items. These line items should be priced for the duration of concrete activities used in the project's CPM schedule in conjunction with the unit prices provided from historical data. Be sure to include the concrete Area Superintendent and Field Engineer in the staff matrix required in section 3, General Conditions.

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. The quantities in **Bold Type** were provided by your extremely experienced Chief Estimator, who should never be questioned on quantity accuracy. DO NOT add items of work on the Concrete Estimate Spreadsheet. In addition, use the attached COST DATA SHEET as the source for labor costs, material costs, equipment costs, and concrete general conditions. Discuss internally with your project team and decide the percentage of fee to be included in this estimate. Attach a written justification for the chosen percentage to you 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 Total Cost of Work concrete line item on the General Summary.

Clarifications:

- Assume walls and columns on floors two through five are typical. Your quantity survey should be based on level two. Window sill walls as shown in detail 15/S511 and 17/S510 are to be quantified as graphically shown on structural elevations.

- Assume floor slabs on level two through six are typical. Your quantity survey should be based on level two.

- Assume columns located within walls as pilasters that are poured monolithically with the walls when quantifying square foot contact area (sfca) of formwork.

Please refer to attached answer spreadsheet for concrete estimate. A typical range for fee for this scope of work would be between 5% and 10% of the total cost. It would fluctuate in this range depending on a number of variables including: confidence in drawings and quality of the estimate, the amount of labor risk, and how your concrete estimate compares to any quotes you may have received from subcontractors. A 7.5% fee was assigned in the answer for this portion of the project based on a strong confidence in the completeness of the documents, the high risk associated with managing your own labor force, and the information and alternate bid received from the subcontractor prior to bid. The percentage was chosen to cover the risks while remaining competitive. The importance of self-performing this work was also influential, since it would provide work for Hensel Phelps craft labor in the area.

4. GENERAL CONDITIONS

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

You are assigned to prepare a detailed breakdown for the project's General Conditions. This breakdown will allow for 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, with exception to concrete supervision, 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 this does not include estimating costs. Due to this job being a design-complete 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. Due to the repeat client, it may prove beneficial that previous projects completed, or soon to be completed, at the University will serve as a 'furniture bone yard' for this project. Some office materials, furniture, computers, etc., may be obtained and should be considered during this exercise. Please take into account that all office setups and staffing are dynamic and must be tailored to the project. This may or may not account for additional equipment to be purchased.

D. 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.

E. Supervisory staff positions should be allocated to the project as the team sees fit.

F. This project will be assigned a summer intern. All costs associated with moving and housing are provided by the jobsite.

G. The University will require onsite trailer (10'x30') facility for their inspection staff.

Please prepare the following documents:

1. Prepare a detailed General Conditions budget for the project using the form provided.

See GC spreadsheet.

2. Prepare a Staffing Matrix showing the duration and period each staff member is on the project on the form provided.

See staffing matrix.

3. Provide three (3) project conditions that can impact the General Conditions and give a brief explanation for each.

- ***Design Management. The risks associated with the design include the design packaging sequence, budgets, and construction sequencing.***
- ***Owner Design Changes and Decisions. The Owner must provide timely decision making in order to complete submittals and design within the time constraints of the project CPM, and ultimately allow for timely, scheduled installation. If the owner requests changes that stray from the design documents, then those decisions must be expedited and***

provide concise direction to not delay design and construction durations.

- ***Unforeseen Weather Conditions. UCI allows for 27 days for weather. The amount of rain days in the contract schedule may not be enough to compensate for extreme or unusually severe weather. The contract documents will specify liquidated damages, rain days, etc. If the contract duration is affected by unusually severe weather, above and beyond the 27 days, then the contractor may not be held accountable for liquidated damages, however, the contractor can not be compensated for extended GC's.***
- ***Fair Market Wage Demands. Our company continues to examine the 'going' rate for FE's, OE's, PE's, AS's, housing, etc., and rates are comparable to the industry. Those projects bid before the wage increases experienced hits to GC's for wage rate increases. Jobs past this time will estimate accordingly.***
- ***Difficult Punchlist. Low performance of subcontractors throughout the project can lead to an increase in management staff at the end of the project, to not extend project completion date. It's the responsibility of the contractor to manage this process, ensuring subcontractors self manage their own punchlist items and completion.***
- ***Material and Fuel Cost Increases. Market fluctuations in materials and fuel costs can drive GC's upside down.***
- ***Housing, Interns and Moving Costs. Depending on the level of staff allocated to the project, the team may be assembled of new hires, which are relocated to the district, and costs are charged to the job.***
- ***Safety. Safety is a top priority on all of our company's projects. Depleted budgets do not justify a change in our safety considerations. Necessary expenditures for signage, flagging, hole protection, personal protective equipment (PPE), training, employee incentives, etc., are not always adequately considered by the estimator. Ever-changing project conditions require maintaining and repositioning barricades, etc. and the purchase of new equipment. Safety costs pale in comparison to the cost of injuries and / or OSHA fines.***

4. (TIME WARP TO 6 MONTHS PRIOR TO PROJECT COMPLETION). The Owner has requested a 3 month early turnover of the project, and subsequently, has requested a cost proposal for providing the substantial completion of the project early. They have indicated that they believe a substantial credit is in order. The University has authorized that typical work days can be extended to 10 hours (2 hours overtime) and Saturday work is acceptable (8 hours overtime). Assuming that all critical path activities allow for this 3 month early completion if accelerated, this option can be achieved (CPM schedule analysis not required for this exercise). Provide cost analysis for this change, justifying your reasoning. The project Superintendent has provided you with the manpower breakdown on the included memo. Your Operations Manager has provided you the attached chart showing the effects of overtime on crew efficiency.

General conditions (job duration) are running $3,359.00 per day. That calculates to $302,050.00 GC's over the last 3 months. When analyzing crew costs via subcontractors, the costs are less than HPCC general conditions. Extended work hours throughout the week leads to a decrease in production efficiency, which costs should be submitted to the owner for compensation. While the chart provided does not address the 5 ten hour days plus 8 on Saturday and runs out after 4 weeks, a judgment call in the range of 70 to 75% efficiency can be made. Grinding out the numbers looks like this:

Added overtime cost:	***$207,902.00***
Added cost due to lost production efficiency:	***$2,288,030.00***
Contractor General Conditions:	***($302,050.00)***
Contractor's Fee	***$207,902.00***
TOTAL FOR 3 MONTH EARLY TURNOVER:	***$2,303,577.00 ADD***

5. PROPOSAL SUMMARY (TAB ANALYSIS)

During today's bid, you are assigned the responsibility of closing the proposal summaries for the following trades: Steel, Drywall & Plaster, Acoustical, Building Specialties and Elevators. 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 questions" 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.

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.

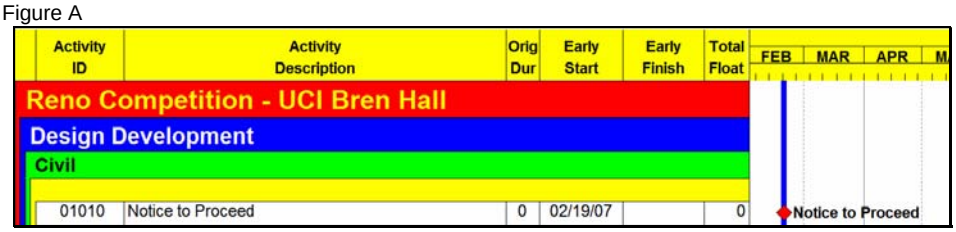
Please reference the attached Proposal Summary spreadsheets for Steel, Drywall & Plaster, Acoustical, Building Specialties and Elevators. Items on the "tabs" which are bordered in heavy line are items which are not discernable from review of the proposer's quote only, but required questioning the proposer further, or making certain assumptions / estimates yourself.

6. 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 WHEN you are contracted to build it. 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 by the specifications. As you know, the Computer Sciences Unit 3-Bren Hall project is Design/Build and your company may perform its own concrete. Therefore, management will be just as concerned, if not more so, about the risks in Design & Concrete as they will be about the rest of the work. In turn, your schedule presentation, written and oral, will be comprised of these 3 major phases of work. The following criteria explain the background information and requirements of the CPM schedule your 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), Total Float (TF) per activity (see Figure "A" below):

Figure A



        ii. Activity count: 150-200
        iii. Show the logic from Design Documents to submittals to fabrication and delivery activities to execution of the required scope.
        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.

    b. Contractual Criteria:
        i. Project Start Date (Notice-to-Proceed or NTP): February 19, 2007
        ii. Project Duration: 910 Calendar days (including design)
        iii. Weather Allowance: 27 Calendar Days
        iv. Minimum Milestones to be presented on CPM Schedule:

Building Dry-in	Notice To Proceed
Design Complete	Punchlist Begins
Final Completion	Rough-ins Begin

Finishes Begin Structure Complete

2. Design Development Phase Criteria:
    a. UCI calls for a maximum 365 Calendar day design phase after NTP. Therefore, your team must have achieve 100% construction documents by the end of that phase. UCI calls for 3 design packages completed during this phase:
        i. Site/Civil
        ii. Foundation/Structural
        iii. Architectural/MEP/Landscape
    b. UCI calls for 6 weeks of review time for each initial package and 3 weeks for possible backchecks, if required.
    c. Target this phase to account for approximately 10% of your CPM's total activities.

3. Concrete - Foundation & Superstructure Phase Criteria:
    a. The management team sees an excellent opportunity by self performing concrete. Naturally, this responsibility assumes more risk. Management will want to be reassured that this risk is minimized and that careful thought has been placed into the plan for concrete work execution.
    b. Phase 2 of your CPM should accurately represent the schedule of the concrete work your team estimated in "Section 2 – Concrete Estimate".
    c. Target this phase to account for approximately 25% of your CPM's total activities.

4. All Other Work Criteria:
    a. The remainder of the work will be handled by subcontractors your team will manage.
    b. Scheduling of all work should support the assumptions made by the Site Utilization Plans drafted in Section 10.
    c. 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.
    d. Target this phase to account for approximately 65% of your CPM's total activities.
    e. Your team may begin construction anytime, provided you have achieved at least 1 approved design package and submittals before you begin work. Therefore, based on your scheduling, determine which of the 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 Contract Completion.

General comments:

1. Do not resource load or cost load your schedule.

2. With the exception of the design development, all phasing of construction work is arbitrary. "Phases" as described above are more of an organizational tool, than a hard and fast rule. As the Design/Builder, your team has the power to phase work in any way that you see fit. Construction phases may overlap, and concurrent work may take place. However, any such decisions must keep in mind 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.

See attached CPM schedule report and comments.

7. COORDINATION OF WORK

(TIME WARP TO LATER IN THE PROJECT DURING CONSTRUCTION)

Concrete work is completed. Wall framing is commencing in corridors and elevator door frames and sills are being installed when the field foreman from the elevator subcontractor storms into your office.

"*You* have a problem. The shaft walls don't align with *my* elevator rails, which were approved through submittal. I have to stop work until you fix the problem or direct me to tear out all my guiderails and start all over after you move the support steel."

You quickly pull the approved elevator submittal (see attachment) and perform a quick as-built of the elevator shaft and tube steel layout (see attachment) before identifying that there is a conflict between the Architect's wall type designation and the guiderail support location for the elevator's needs. The concrete shaft clear openings and locations are verified to be perfect, of course.

1. Although the field foreman has exaggerated the problem, a problem still exists. Detail a solution that will get the elevators back on track.

Reference 6/A-527 versus the type 'K' wall on A-620. Wall type K calls for 4" C-H stud, with 2 layers 5/8" gyp on hallway side. 6/A-527 calls for the C-H stud to project past the 4" tube steel (TS) by 1" (to allow the 1" shaft board to pass by TS on the interior face), but incorrectly depicts the C-H stud extending past the 4" TS on both sides. In reality, the 4" C-H stud would start 1" past the TS on the shaft side and end 1" inside of the TS

face on the hallway side. Per the hoistway tolerances found on sheet 7 of the shop drawings, the hoistway walls can be a maximum of 1" out of tolerance in relation to the hoistway centerline. Therefore, acceptable answers include: (1) enlarging the C-H size, and thereby thickening the wall, which will intrude further into the hallway, such that detail 6/A-527 can be followed, or (2) aligning the shaft board with the interior tube steel face so that the hallway gyp board will be able to bypass the tube steel. This will have the effect of additional fireproofing detailing at the shaft wall/tube steel intersections, but it is exactly at the 1" tolerance.

2. Better double check other trade coordination with the elevators while you have the shop drawings out. Besides the drywall and structural concrete operations, list five other trades that require coordination with the elevator requirements and the elements that each of these trades is to provide for the elevator per the shop drawings and the plans.

The following answers are found on page 7 of the elevator shop drawings unless noted otherwise:
Electrical: power, electrical light & outlet locations in pit (Pit #22-23)
Misc. Metal: pit ladder (Pit #24), tube steel supports (6/A-527 & Hoistway #9), screen wall between same hoistway cars (Hoistway #8), installation of hoist beam (Hoistway #7), sump pit grate (14/S-500)
Mechanical/Plumbing: coordination for equip room temp., sump pump (Pit #21), hoistway vents/louvers (Hoistway #6)
Flooring: thickness & weight of cab flooring
General Contractor: grouting of door sills (Hoistway #14), 2 each lifeline attachments at top of hoistway (Hoistway #18), trash containers (General #2), barricades around hoistways (Hoistway #17), floor level elevations (Hoistway #19)

8. PERSONNEL ISSUES

You are the Project Engineer and therefore responsible for reviewing subcontractor insurance certificates for compliance with contractual requirements. You have delegated some of the review to the Office Engineers. As you review the certificates there are a few subcontractors missing an item or two off of the insurance checklist. They happen to be subcontractors that have been working on the project for at least 6 months. Records show that they have had at least 3 notices sent regarding the inadequacies of the insurance certificate provided.

1. Explain your immediate course of action.

Determine the importance of the items missing and discuss these with the Project Manager so you can decide if you can let the subcontractors continue working on the project for now. You should contact the insurance

company listed on the certificate to find out why the certificate was not provided per the subcontract requirements and get it fixed immediately.

2. What course of action would you take to insure that the Office Engineers do not allow inadequate subcontractor insurance to remain outstanding?

Arrange a meeting with the Office Engineers to discuss why they have allowed the subcontractors' insurance to be incorrect. You need to re-emphasize the importance of insurance and why we have checklists to ensure the proper coverage on our projects. You should also reinforce that they need to ask for assistance when they are not able to resolve an issue on their own.

3. Do you explain what happened to your Project Manager?

Yes. Do not try and sweep this situation under the rug in order to avoid potential heat directed your way – honesty is always the best policy.

9. SAFETY

(TIME WARP TO AFTER CONTRACT AWARD)

You are a newly promoted Area Superintendent that has just been assigned to the UC Irvine Bren Hall project. Your project Superintendent has just tasked you with completing the outline for the Project Safety Orientation that ALL employees will be required to attend before they will be allowed to work on-site.

Before sending you off to complete this very important task he explains that safety must start at the planning stage and that no effective work has ever been accomplished without some degree of planning, and the more thorough planning, the better the result. Additionally, the Project Safety Orientation will help convey our occupational health goals and increase awareness to things such as but not limited to emergency procedures, personal protective equipment, fall protection, electrical, equipment, cranes, parking, training, housekeeping, hot work permits, accidents/nears misses, etc …

The safety and health of all employees on this construction site is a primary concern of the company. Each supervisor must insure compliance with established occupational health practices to reduce potential exposure. All employees must be fully aware of their responsibilities to achieve an accident free environment.

You are to utilize the attached partially completed outline to help you develop your entire Project Safety Orientation Outline. You should not plan on presenting this at your team's interview; just include a copy in your answer packet.

See attached outline.

10. SITE UTILIZATION

The Computer Science Unit 3 – Bren Hall project is located on a 2 acre site on the University of California, Irvine campus in Irvine, California. The site is currently utilized as a parking lot for the University. The University Club is located to the East. The University Club is the campus restaurant where prospective professors and other important guests are taken. The facility is also rented out on most weekends for weddings. To the west is the existing Computer Science building and the Information Computer Science (ICS) building. To the south is a fire lane that must remain open at all times. The Ring Mall is to the north. The Ring Mall is also a fire lane and is also the main pedestrian route on campus. The Ring Mall is a circular path that goes around the entire campus. The Ring Mall has two lanes and one lane must remain open at all times.

The University has provided parking for the craft at the dirt lot on the corner of East Peltason Drive and Bison as indicated on Sheet C-000. This is approximately four tenths of a mile from the project site. The project has been given the portion of the laydown yard indicated on Sheet C-000. The laydown area can be used however you see fit. The Hensel Phelps Construction Co. project trailers can be located on the project site, the laydown yard, or next to the owner's field office. The owner's field office location is shown on Sheet C-000. The site utilization plan is to be based on the criteria that all demolition, earthwork, and site utilities have been completed and are now digging footings.

1. Site Utilization Plan

Use any of the full size drawings to creating your site utilization plan (Sheets A-100, C-000, and C-020). 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 presented and that your logic does not contradict code requirements. Ensure that all locations for the items listed below are coordinated with future work activities, so they do not impede the project construction. In addition, if your site utilization changes / evolves throughout the project (as may be necessary) describe the flow of the changes. Include but do not limit yourself to the following information on your plan:

- Location of your project office
- Location of Mechanical, Electrical, and Plumbing subcontractor trailers
- Locations for the temporary fence and access gates
- Required signage
- Material deliveries and temporary storage
- Location of Toilets and Wash stations (Assume a max. of 90 craft personnel on site)

- Location(s) of crane(s) for formwork, reinforcing, structural steel, etc.
- Emergency evacuation location
- Location of temporary utilities for construction use
- Any other items that your team deems necessary

See attached site utilization plan.

2. Phased Site Utilization Plan

On this project there will be a few phases of work that will possibly impact the site-utilization plan. The utility tunnel tie-in and the domestic water tie-in will require blocking off access to each lane of the Ring Mall at some point. In addition, at the end of the project, landscaping and various hardscape finishes will occur that will also need to be taken into consideration.

A. Briefly describe how one lane of the Ring Mall will remain open for fire and pedestrian access at all times. If necessary, prepare a 'Phased' site utilization plan that will show how the utility tie-in will be completed and maintain Ring Mall access.

Please see attached phased site utilization plan. Note that the project fence was adjusted to make the utility connections. For most of the project the fence was set so that the south ring mall was incorporated into the site. During the time we were making the utility connections we moved the fence so that neither lane of the ring mall was within the main project fence line. We then set up a second fenced area which encompassed the north lane of the ring mall. Before the fence realignment was done we restored the south lane of the ring mall. Where the utilities were to be installed we excavated and installed trench plates so that we could still have access to install the utility lines. Once the fence was restored to the original layout the trench plates were removed and the remaining trench was backfilled.

B. With site work taking place, briefly describe any conflicts that might occur with locations of trailers, etc. and completing all of the landscaping and site work. Provide a brief explanation on how these conflicts will be resolved or coordinated. If there are no foreseen conflicts, briefly explain how the site utilization plan was coordinated with the final site work.

In preparation for the site work we had all the subcontractors remove any staged material and trailers. If a subcontractor was not complete we had them move their material to the laydown area. The exterior skin was completed by the time the site work began so that scaffolding would not be in the way. The only equipment still on site

was a couple of boom lifts and they were positioned so that they would not interfere with the site work.

Note: A separate site plan does not need to be created for the Phased Site Utilization Plan portion of the problem as long as your answer clearly describes your solution.

11. UNFORESEEN SITE CONDITIONS

(THIS IS A TIME WARP. Fast forward to after completion of Civil and Structural Construction Documents)

Sheet C-003 shows existing site electrical and communications conduits extending North and then East from the electrical room of the existing Cal IT Building. The location of the conduits as shown on sheet C-003 was based on as-built drawings provided by the University prior to the original bid date. As located by the University's as-built drawings, the conduits lie outside of the footprint of Bren Hall, and therefore are not expected to interfere with the building's foundation.

Your Design-Build Electrical and Communications Contractor also performed the Electrical and Communications work for the Cal IT Building several years ago, including the site utilities referenced above. After receiving approval of 100% Civil/Structural Construction Documents, but just prior to breaking ground on Bren Hall, your Electrical Contractor mentions to you that he seems to recall that the existing electrical and communications conduits shown on sheet C-003 extend farther North than indicated on the drawings.

Immediately, you decide to have the Electrical Subcontractor pothole to identify the exact location of the existing conduits. It is determined that the communications conduits (but not the electrical conduits) do, indeed, conflict with the planned foundation for Bren Hall. Attachments 1 and 2 show the actual location of the telecommunications and electrical conduits. Attachment 3 is a photo of the exposed conduits—the orange layout line denotes the edge of the Bren Hall foundation.

After several discussions with the Structural Engineer and the Electrical Contractor, you determine that there are three options:

A. Redesign the foundation for the Southeast corner of Bren Hall to accommodate the existing location of the communications conduits.

B. Shift the entire footprint of Bren Hall three feet to the North.

C. Excavate and relocate the existing communications conduits.

1. Evaluate and discuss the pros and cons of the three options. Identify issues that have potential cost or schedule impacts for each option.

A. Redesign the foundation for the Southeast corner of Bren Hall to accommodate the existing location of the communications conduits.

Pros

Existing conduits will not need to be relocated. This means that there will be no interruption of electrical service to the occupied Cal IT Building. This avoids inconveniencing the University and allows the work to be done during the day rather than on overtime, saving on labor costs.

The building will not need to be relocated, so the surveying and layout you have already done will not go to waste. In addition, your utility connections to the building will remain in the same place, so the utility drawings will not need to be revised.

You can proceed with breaking ground on utilities and structural excavation everywhere except the Southeast corner of the structure. This will help mitigate schedule delays.

Cons

The foundation drawings have already been approved by the structural engineer and permitted by the Building Department. Accommodating the duct bank will require redesigning the foundation and resubmitting plans and calculations for approval. This could take several weeks and potentially delay progress on the foundation.

If structural columns needed to be adjusted, it would require not only structural redesign, but architectural redesign as well. There is a potential impact to windows and interior finishes.

Modifying the foundation design will involve changing the rebar in that area as well. Rebar shop drawings have already been approved by you and your structural engineer and been released for fabrication. There will be costs associated with revising the rebar shop drawings and re-fabricating a portion of rebar. There is a potential for minor schedule delays as well.

It is poor practice, and usually prohibited, to allow utilities to be located underneath a building's footprint. Doing so could make future maintenance and/or demolition of the utilities difficult, if not impossible.

B. Shift the entire footprint of Bren Hall three feet to the North.

Pros
Existing conduits will not need to be relocated. This means that there will be no interruption of electrical service to the occupied Cal IT Building. This avoids inconveniencing the University and allows the work to be done during the day rather than on overtime, saving on labor costs.

The foundation will not need to be redesigned, which means that the structural, architectural, and rebar drawings will not need to be modified or resubmitted for approval, thus avoiding the associated costs and delays discussed above.

There will be no doubts as to whether the accommodations made to the structural plans compromised the structural integrity of the building.

Cons
Shifting the building will mean re-doing all of your layout and shifting any monuments you have already established. This will either involve several days of work for your field engineers, or hiring a surveying crew to do the rework. Meanwhile, you will be unable to begin grading or structural excavation.

Moving the building's footprint will also affect all of the utility connections to the building—both the location and the elevation of each connection will change. The shift will also entail revising the grading plans and possibly adjusting storm drain elevations and locations throughout the site.

The landscape design will also be affected, so these drawings will need to be revised.

Making significant changes to the civil drawings, utility drawings, grading and drainage plans, and landscape plans will require at least a week of redesign, if not more. The revised drawings will then need to be reviewed, checked for coordination, and re-submitted for approval. Earthwork will not be able to begin until revised plans have been approved. In addition, simultaneously and hurriedly modifying the plans of multiple consultants presents an opportunity for lack of coordination and future problems during and after construction.

Finally, the University located the building where they wished for it to be, and you may not be aware of all of the factors considered in its placement, such as the Master Plan, walkways, specific angles, views, alignment with other buildings, etc…

C. Excavate and relocate the existing communications conduits.

<u>Pros</u>
Relocating the existing utilities does not necessitate redesigning the foundation or shifting the building, and therefore will not involve modifying any portion of the design of Bren Hall. This will allow you to avoid the cost and delays associated with redesign, resubmitting drawings for approval, and redoing your layout.

Because redesign of Bren Hall is not necessary under this option, your company will be able to proceed with earthwork in all areas except the Southeast corner of the building. This will help minimize schedule delays.

<u>Cons</u>
Relocating utilities currently serving the Cal IT building will mean interrupting electrical and/or IT service to an occupied University building. If done during the day, the work will create a significant inconvenience for the building's users. The work could be done at night to minimize this inconvenience, but will then be done at higher overtime labor rates.

2. Determine how you are going to proceed and explain your reasoning.

Hensel Phelps decided to excavate and relocate the existing communications conduits, mainly because this option did not entail revising the current approved design. Avoiding all redesign eliminated both the need to re-submit drawings for approval and the risk of coordination issues stemming from hasty revisions. We also avoided revising the site layout and staking that had already been done and were able to proceed with earthwork on the majority of the site while the existing conduit was relocated.

3. Given the facts as stated above, do you believe that the Owner should be held responsible for any cost and schedule impacts? Explain why or why not.

The first issue at hand is the inaccuracy of the as-built drawings provided prior to bid. From an Owner's perspective, the two major advantages of a design-build project are a condensed schedule (construction can begin before design is 100% complete) and a minimization of design risk. On a design-build project, the architects and engineers work for the General Contractor rather than the Owner. Therefore, the General Contractor is primarily responsible for cost and schedule impacts attributable to design and coordination issues. However, their responsibility extends only as far as the accuracy, completeness, and coordination of their own designers' drawings.

Even on a design-build project, the General Contractor's initial bid to the Owner is dependent upon the drawings and information provided at the time of the bid. By law, the General Contractor is responsible for conducting a reasonable pre-bid inspection to verify that the existing site conditions are consistent with any plans provided by the Owner. However, the General Contractor cannot be held responsible for uncovering hidden subsurface conditions that could not have been reasonably foreseen.

The existing electrical and telecommunications conduits serving the Cal IT building were misrepresented on the as-built drawings provided to the Contractor prior to bid. The conduits were also completely concealed underground, and their location was not marked above ground in any way. Even a reasonable and intelligent contractor, experienced in this field of work, could not be expected to foresee that the conduits were not located as shown on the drawings.

Under these circumstances, the Owner should be held responsible for unforeseeable inaccuracies in the as-built drawings provided to the General Contractor prior to bid.

The second issue is that your electrical subcontractor is the same subcontractor who originally installed the conduits and provided the faulty as-built drawings. However, that work was done under a separate contract, for a different project, by another General Contractor. You, the general contractor, are entitled to compensation for the cost and schedule impacts to the Bren Hall Project resulting from the unforeseen conditions. The Owner may attempt to recover these funds from the General Contractor who built the Cal IT building, and they may, in turn, seek recovery of those losses from your electrical subcontractor.

Because recourse may only be sought between parties who are directly contracted with each other for a particular project, the fact that your subcontractor happens to have worked for a different General Contractor on the Cal IT Building is irrelevant.

4. If you decide that impacts resulting from these unforeseen conditions should be the responsibility of the Owner, you must notify the University in writing immediately. Write a Notification of Impact to the University. Explain the situation, how you propose to proceed, and why your company should be compensated for the changes.

See attached letter to the University

5. If you decide not to request additional time or money from the Owner, you must notify your electrical subcontractor of the situation and explain why you are

holding them accountable for costs and schedule impacts resulting from the condition. Write a letter to your electrical subcontractor explaining how you wish to proceed and why they are responsible for the changes.

See attached letter to Your Electrical Subcontractor

- **Note: Your team should answer either Question #4 or Question #5, but NOT BOTH.**

12. QUALITY CONTROL

(TIME WARP TO LATER IN THE PROJECT DURING CONSTRUCTION)

Back when you were buying out the various scopes of the project, the Owner mandated that you use some specific vendors for minor scopes of work, as they had already made some finish selections and "pre-negotiated" a purchase agreement scope and dollar amount, but left the actual subcontracting to you, the General Contractor. With every intent to please the Owner, you agreed to use these pre-negotiated suppliers (i.e. forgo competitive bidding), but required the vendors to sign up under your purchase agreement terms so that you could have control over aspects of their work, such as scheduling, billing, etc. Everyone was happy: the pre-agreed dollar amounts fit your Contract budgets and the Owner was going to get the products that they had pre-selected. The pre-cast concrete elements were one such "pre-negotiated" scope.

The pre-cast elements that trim the exterior face of the building arrived on schedule, much to your amazement, since the supplier had turned out to be very difficult to deal with in the submittal and mock-up phase of pre-construction. The mason has installed a bulk of the pre-cast items. Life is good until the Owner's representative visits the site and brings up their dissatisfaction with the pre-cast color—or rather, the variation in color. The pre-cast color is consistent on each piece, but not from piece to piece; such that only a few of the pre-cast pieces actually match the color of the Architectural cast-in-place concrete walls as was intended.

Revisiting the mock-ups, you find that the submitted colors did match the Architectural concrete, and the product data does not mention anything about color variations. The supplier explains that it is natural for any batched item (like brick or pre-cast) to have some amount of variation from batch to batch, as the environmental temperature during mixing/curing may slightly vary, or the batch mix may slightly vary, or the curing process may slightly vary, etc. Regardless, it is too late in the schedule to re-order replacement pre-cast elements and still install them before building turns over to Ownership.

1. Whose problem is this?

This is your (General Contractor's) problem, as the supplier is subcontracted with you, and you are contracted with the Owner. Bringing the project together on time and to the Owner's satisfaction is your job. The problem originated with the supplier, and the weight of the solution should be placed on the supplier to solve it, with the guidance of the General Contractor.

2. How could it have been predicted or prevented?

Supplier could have submitted expected color variant samples to raise concerns before actually batching production runs of the product. The order could have been sequenced such that elements were all batched/cured together under similar circumstances, or that elements on similar faces of the building were batched/cured together so that at least the elements on each face would have been homogenous. Supplier could have been tied to using the same concrete supplier as the cast-in-place product, to limit any material/batching differences. Earlier detection could have been made by inspecting the pieces upon delivery (before installation) and comparing them with the control/approved-submittal samples; or by having a control sample at the batch plant so that non-conforming colored pieces could have been rejected before leaving the plant.

3. How can this issue be remedied to the Owner's satisfaction? What are some cons to the proposed solution?

(A) The pre-cast elements can all be coated with a paint, stain or cement skim coat that would match the desired color uniformly. The problem with this solution is that a maintenance issue is created for Ownership, as the coating will require routine re-application. (B) The pre-cast elements could still be re-ordered, despite the lateness in the schedule. The problem with this solution is that the replacement pieces must be installed after Ownership occupation of the building.

4. How should the costs of your proposed solution be conveyed to the responsible party?

The supplier should bear the costs by either performing the repair directly, or by conveying the costs through deductive change order in order to pay the trade who does perform the repair.

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

13. BONUS - LEGAL

The University of California has been involved in several contract disputes on large construction projects. In order to protect the University of California, the University's Standard Contract General Conditions have become more and more onerous and difficult to fully comply with, ultimately, increasing the Contractor's and Subcontractor's risks during the completion of a construction Project.

In an effort to attract more Contractors and Subcontractor's to participate on University of California construction projects the University System has made some modifications to the Standard Contract General Conditions.

Review the attached University of California Irvine Standard General Conditions, dated March 1, 2006, and compare them to the revised University of California Irvine General Conditions issued in an addendum, dated September 1, 2006.

Provide a list of modifications that would be considered more desirable to the Construction Community, utilizing the included matrix.

See attached matrix.

14. BONUS - GREEN BUILDING

LEED is a system developed by the United States Green Building Council (USGBC) to promote a voluntary 'Green' approach to designing and constructing new and existing buildings. LEED is changing the way projects are being built throughout the construction industry. Owners and developers are recognizing the many benefits Green Building has to offer. The benefits are reducing the operating costs in buildings, which reduces negative environmental impacts. Other benefits include; increased occupant productivity, reducing occupant absenteeism, adds a marketing advantage, and adds an increase the building value and return on investment. Therefore, University of California Irvine has acknowledged some of these benefits and is requiring the Computer Sciences Unit 3-Bren Hall Project to be LEED Certified.

1. Indoor Environmental Quality Credit 1 – Carbon Dioxide (CO_2) Monitoring requires CO2 sensors located within all densely occupied spaces (those with a design occupant density greater than or equal to 25 people per 1000 SF) and located between 3 feet and 6 feet above the floor. How many CO_2 sensors are located on the 1st floor? Are there enough CO_2 sensors on the 1st floor to obtain EQ Credit 1?

Total CO2 Sensors are located on the 1st Floor. (Reference sheets MZ-101 and M-602). One CO2 sensor is located in the following rooms: RM 115, RM 125, RM 127, and RM 130. Based on the LEED parameters each of the rooms are greater than the allowable 1000 square feet. Suggest adding 1 additional CO2 sensor to each of the rooms plus two additional sensors in RM 116 because this room is designated as a 65 seat classroom which is

also greater than 1000 square feet and a variable density space. Therefore, the total CO2 sensors on the 1st floor shall be 10.

2. Develop an Indoor Air Quality (IAQ) Management Plan to follow for the construction phase of the building.

IAQ Management Plan during Construction and Pre-Occupancy Plan

- ***a. Mechanical Equipment***
  - ***i. Material stored and installed in controlled environments***
    1. ***All ductwork, fans, registers, etc. will be stored in a controlled dust and moisture free environment prior to installation areas and will be covered in plastic to against possible contamination. All exposed air inlets and outlet openings, grilles, ducts, plenums, etc. will be adequately covered and protected by sealing or capping the ends to prevent water, moisture, dust, and other contaminate intrusion during construction. Natural ventilation from windows will provide adequate air flow throughout the building when exterior activities are constantly controlled by means of dust suppression and emission control. HVAC ducting will be kept clean, installed in one continuous operation and fully enclosed at the end of each work day.***
- ***b. Material Source Control***
  - ***i. All building materials will be kept dry and protected from moisture infiltration***
    1. ***Absorptive or porous building materials will be kept in an area that is free and protected from moisture to prevent possible mold or bacterial growth. Such items are required to be elevator and placed on a form of spacer to allow air to circulate between the material and the ground. Material will be fully covered and protected during weather and will be allowed to dry and breathe when not in a potential state of water infiltration. Packaged dry products shall be removed from packaging and ventilated in a secure, dry well ventilated space and free from strong contaminants and residues.***
  - ***ii. Moisture Damage Materials***
    1. ***Any porous building material that has been damaged by moisture will be discarded immediately. Any signs of mold or bacteria growth on all materials will be removed immediately.***
  - ***iii. Protect against moisture accumulation***

1. ***All contractors are required to contact Hensel Phelps Construction Co. in the event of any water infiltration into the building. Standing or ponding water is not permissible and will be removed immediately upon recognition.***

iv. Utilize low VOC materials

1. ***All materials to be installed will have low VOC content and conforming to the requirements mandated by the South Coast Air Quality Management District. Any materials that contain higher levels of VOC's will be allowed to off-gas prior to installation. The off-gas period will be a minimum of 72 hours and a designated location will be secure, dry, free from pedestrian traffic, and maintained at a reasonable temperature. All carpet rolls, vinyl flooring, wall coverings, etc. will be opened up and allowed to breath at a location other than its installation point.***

v. Waste Removal

1. ***Construction areas will be kept free from construction debris, trash, etc. and will be monitored daily to limit possible introduction of contaminants. Waste and recycling receptacles will be located outside the perimeter of the buildings that allows for the most direct route from the building, not passing through other work zones.***

c. Housekeeping

i. Dust/Dirt Suppression

1. ***All activities that generate dirt, dust, or other contaminants will be controlled by means of collection systems integral to the system being used. All necessary means and methods of controlling dust and airborne contaminants will be implemented during construction to ensure good air quality. Jobsite clean up is required daily. Floor mats will be at the building entrances to minimize the tracking of contaminants into the building.***

ii. Work Areas Orderly and Clean

1. ***Work areas to be clean and kept in an orderly fashion to ensure that production is not disposed of upon recognitions. All leaks, spills, etc. will be cleaned up and properly disposed of upon recognition. All volatile liquids, including fuels and solvents will be in tightly sealed containers and stored outside the building, conforming to the SWPPP requirements,***

when not in use. All spills, solvents, fuels, etc. will be cleaned up immediately and material will be discarded. The area in which the spill occurs will be blocked off to avoid spreading the contamination to unaffected areas. "No Smoking" is not allowed in the building and signs will be posted at all building access points.

- ***d. Project Sequencing and Scheduling***
  - ***i. Building Dry-in***
    1. ***Interior finishes and materials will only be installed after the building envelope is determined to be weather tight. Electronic moisture meter readings will be taken prior to material and finish layer applications to ensure coating adherence and project specification compliance. All materials to be protected from weather prior to installation and will remain protected and isolated from moisture infiltration from time of installation.***
  - ***ii. Material Installation***
    1. ***Material installation will be sequenced to insure that all wet applied interior finish materials are properly and fully cured before installing other finish materials over them. Sufficient ventilation, air circulation, and air changes will be provided to properly cure materials and minimize the humidity levels. Materials that require off gassing will be installed after the material has had ample time to off gas. Carpets and other furnishings will be installed after all other interior finish materials have been applied and fully cured. After flooring installation, floor mats will be temporarily placed at the building entrances to minimize tracking of contaminants throughout the building.***
- ***e. Building Two-Week Flushout***
  - ***i. Temporary Filtration Media***

    Air handlers will be equipped with a filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 at each return air grill during construction. After construction ends replace the MERV of 8 filtration media with a MERV of 13 filtration media and conduct a minimum of two continuous weeks. After the building flush out is complete, we will replace all of the HVAC filtration media immediately prior to occupancy. The filtration media will have at least a MERV of 13.

3. Prior to occupancy, it is possible to conduct an indoor air quality test in lieu of the 2-week flush out. What measures shall be taken prior to testing to ensure in having a successful air quality test?

Following these guidelines will help minimize the chance that the sampling will have to be repeated, thereby increasing the costs and possibly delaying building occupancy.

a. ***Testing shall commence after carpet is in place, after all paints and other wet products/solvents have installed, but before furniture is installed.***

b. ***Prepare and operate the mechanical system to ventilate the building as much as possible during final construction, as soon as the HVAC system is ready to operate. Apply filtration guidelines found in LEED Version 2.1 EQ Credit 3.1***

c. ***There should be a strict moratorium on all construction work that involves creation of dust, application of wet products, or the use of any solvents at least 2 days prior to the scheduled sampling date, (ideally over the weekend).***

d. ***During the 2 day period, the building should be ventilated thoroughly with the mechanical system on 100% outside air, and/or with operable windows if applicable.***

e. ***For the testing day itself, the building should be operating on code minimum outside air quantities. Again, there should be no construction, solvent use, paints applied during the sampling period.***

15. ADDENDUM: FENG SHUI

(TIME WARP TO LATER IN THE PROJECT DURING CONSTRUCTION)

During an Executive Partnering Meeting with the Design Build team and the Owner, the Owner expressed to your team that they are firm believers in the concept and theory of Feng Shui Design. The Owner explains to your team that Feng Shui is an ancient Chinese practice of the placement and arrangement of space, which has claimed to achieve harmony with the environment. They also noted that this design concept utilizes five elements: Fire, Earth, Metal, Water and Wood to create balance and positive energy in buildings or landscapes, when placed correctly in the space according to their attributes. Based on this concept, Feng Shui Designers have dictated where restrooms are located, which way doorways should face, where mirrors should hang, and which rooms needs

green plants, etc. in order to maximize the flow of energy “chi” into and out of spaces.

After listening to the Owner’s interior design theory, the Owner discloses that they have contracted a Feng Shui Consultant to asses the Architectural Floor Plans, and would like to make the following revisions as directed by the attached Field Orders:

1. What scopes of work would be impacted by relocating the doors locations in Room #’s: 265, 307, 357, 366, 406, 454, 466, 506, 555, and 569 on Levels 2-6.

The following scopes of work will have to be performed, per this field order:

- ***Remove and Reinstall (7) Door Frames @ Levels 2-4***
- ***Remove and Reinstall Stud Framing @ Levels 2-5***
- ***Remove, Reroute, and Reinstall Rough-In Work for Light Switches, Electrical Outlets, Thermostats, Data, and Telecommunications @ Levels 2-4***
- ***Reroute Rough-In Work for Light Switches, Electrical Outlets, Thermostats, Data, and Telecommunications @ Level 5***
- ***Remove and Reinstall Fixtures for Light Switches, Electrical Outlets, Data, and Telecommunications @ Levels 2 & 3.***
- ***Remove and Reinstall Fixtures for Motion Sensors @ Level 3***
- ***Remove and Reinstall Fixtures for Thermostats @ Level 2***
- ***Remove and Reinstall Fire Extinguisher Cabinets @ Levels 3 & 4***
- ***Remove and Reinstall Wall Insulation @ Levels 2-4***
- ***Remove, Reinstall, and Finish Drywalls @ Levels 2 &3***
- ***Remove and Reinstall Drywalls @ Level 4***

2. Create a detailed spreadsheet that itemizes all impacts created by this Field Order.

See attached spreadsheet.

3. Name at least three (3) Benefits of Feng Shui and why it should be implemented as part of the design.

Improve Productivity – With a more organized workplace, one may feel more motivated and work efficiently. Also one may find themselves improving on determining priorities, conquering procrastination, and handling interruptions.

Create Prosperity – Feng Shui believers feel that a balanced space will bring luck and prosperity.

Eliminate Stress - With feng shui you can live a healthier, happier life and achieve a feeling of calmness, mental clarity, and relaxation. You may also experience an increase in energy and creativity and see improvements in your relationship with your spouse, family and co-workers.

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.	Technical Proposal	4
3.	Concrete Estimate	20
4.	General Conditions	14
5.	Proposal Summary	14
6.	Schedule	18
7.	Coordination of Work	6
8.	Personnel Issues	4
9.	Safety	6
10.	Site Utilization Plan	12
11.	Unforeseen Site Conditions	10
12.	Quality Control	6
15.	Addendum – Feng Shui	8
	Subtotal	128
	Oral Presentation	80
	GRAND TOTAL	208 POINTS
	Bonus Questions:	
	13. Legal	6
	14. Green Building	6

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

VIII. LIST OF JUDGES

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