ASSOCIATED SCHOOLS OF CONSTRUCTION

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

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

Region VII- Commercial Building Division

February 10-13, 2016

Problem Statement

UNIVERSITY of CALIFORNIA
IRVINE

Mesa Court Expansion

Irvine, CA

Problem Sponsor:

HENSEL PHELPS
Plan. Build. Manage.

Associated Schools of Construction Competition
Region VII – Commercial Building Division
February 10-13, 2016

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I. COMMERCIAL DIVISION TIME TABLE

THURSDAY, FEBRUARY 11TH

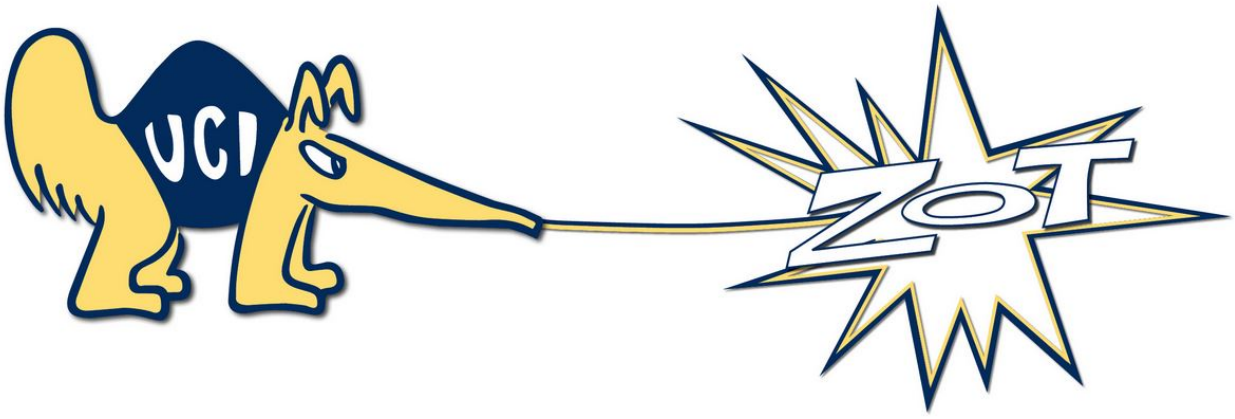
Opening Conference / Distribute Problem / Establish Presentation Order ..... 6:00 AM
First Progress Meeting / RFI's Due ..... 10:00 AM
Lunch Delivered to Rooms ..... +/-12:00 PM
Second Progress Meeting / Question Session ..... 2:00 PM
Subcontractor Interviews (10 min. / team) ..... 2:30 – 7:00 PM
Dinner Delivered to Rooms ..... +/-5:30 PM

FRIDAY, FEBRUARY 12TH

Proposals Due ..... 12:00 AM (Midnight)
Interview Material Due (all teams) ..... 6:45 AM
Interviews Start ..... 7:00 AM
Project Debriefing ..... 6:00 PM

SATURDAY, FEBRUARY 13TH

Career Fair ..... 8:00 AM -12:00 PM
Awards Ceremony ..... 11:00 AM



II. PREFACE

WELCOME to the 2016 ASC Student Competition. All participants are to be commended for the personal time and financial commitment made in preparing for and attending this competition. The construction industry has noted these sacrifices and the premier student population that is competing here. This is evident in the quantity and quality of companies attending the Career Fair.

The student competition is designed to challenge each team to different facets of the construction industry. Each team's estimating, scheduling, organization, 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 working in the industry. It is Hensel Phelps' 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 very often not kind, fair, or logical! The construction industry will present situations where people are less than pleasant, and pressure is applied to the extreme, but it will also provide great feelings of accomplishment and team camaraderie. Some questions, both in real life and in this competition, may have multiple answers and some questions may have no correct answer. The superior level of the student competitors attending the competition should embrace these challenges and recognize the value of these lessons.

The judges in the interview portion of this competition may seem to "put you through the wringer" with tough questions and references to deficiencies in your written proposal. Although it is human nature to "take it personal", please understand that these lessons are for the good of your development and excellence. It is not the intent of the judges to frustrate and alienate you, yet the spirit of competition places a duty on the judges to ask the hard questions that will allow team rankings to occur. At the end of the competition each team member should reflect on the knowledge and experience gained, and hopefully the judges can become mentors and friends to you.

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, you should recognize the vast knowledge, industry exposure, and experience gained in competing and finishing this problem. This is the real reason all teams and individuals are competing. Yes, it is true, every person competing is a winner, regardless 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 coupled with the oral presentation, judged by a seasoned 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, but feedback will be provided after the competition.

Congratulations for participating and Good Luck!

III. PROBLEM SCENARIO

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

Our company was "short listed" through a Request for Qualifications (RFQ) process to be one of three teams to compete for the UC Irvine Mesa Court Expansion. The Request for Proposal (RFP) was issued by UC Irvine almost ten (10) weeks ago and our Design-Build (D-B) team has been working feverishly to put a Technical and Price proposal together to meet this week's deadline.

UC Irvine's RFP asked each D-B team to create a design through Schematic Design (SD) level drawings of the building it proposes to provide. The design must meet: 1) UCI's minimum programmatic requirements spelled out in the RFP, 2) campus-standard guide specification requirements and 3) all applicable building, energy, fire and accessibility code requirements. This design submission is part of the Technical Proposal deliverable which will be scored by UCI. Each team's bid price will be divided by their technical score to establish the "cost per point". The team with the lowest cost per point will be awarded the project, the two other teams will be each awarded a stipend of $1 Million to cover the cost of their design and proposal efforts. Our team has no desire for the million buck consolation prize – we want to build this job!

Our company has successfully completed 12 previous contracts at UC Irvine including classrooms, laboratories, graduate student housing and the new world-class hospital at their Medical Center campus. We cannnot let our past success and strong relationship with UCI make us complacent though, this is going to be a hard fought procurement and the other teams are worthy competitors. For this project we have partnered with architectural firm Mithun from Seattle based on their large portfolio of student housing experience and feel that will give us a very strong foundation for the design component of this project.

Upper Management needs to review our conclusions tomorrow prior to the formal proposal going to UCI. We are to turn in a written report tonight by Midnight including the requested items described on the following pages. Tomorrow we will present our findings to Upper Management and respond to their questions.

Interim progress meetings are scheduled for 10:00 AM and 2:00 PM today (Thursday, February 11th).

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 X.0.3.

The 2:00 PM meeting will be for verbal questions and answers only.

Please note that some of the written questions occur later than the pre-proposal meeting, consider these a "Time Warp" and answer them with that understanding. This is to challenge the 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, Superintendent, Estimator and Scheduler; other roles will be at the team's discretion. The 30 minute presentation should allow for 20 minutes of team presentation and 10 minutes of questions and answers. Your presentation should focus on the following topics: Cost,

Schedule, Site Utilization, Quality and Safety. Creativity and innovation are encouraged, shallow marketing pitches are not.

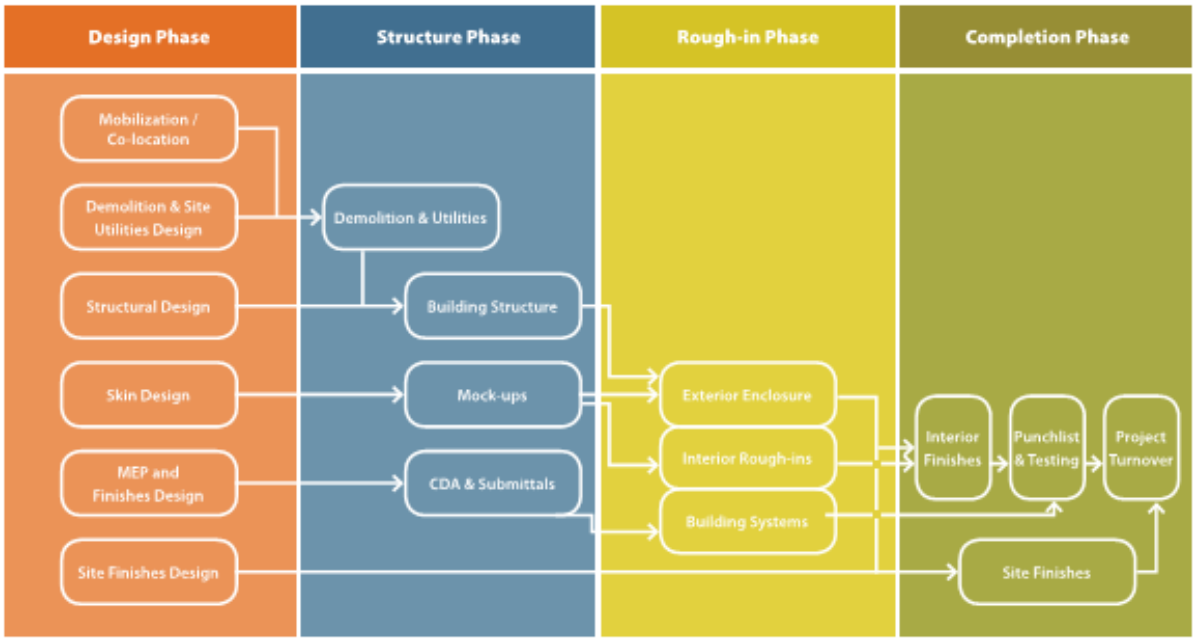
IV. PROJECT INFORMATION

Mesa Court is the oldest student housing community at UC Irvine, tracing its roots back to the 1960's when UCI first opened. Mesa Court is made up primarily of two story wood framed buildings housing freshmen. The Mesa Commons building contains the dining hall, study space, recreation room, administrative office and maintenance shops to support the entire community. This new project will demolish the Mesa Commons building and replace all of its functions in the same location while adding 5 floors of dorms above to house 738+ students.

Vintage Aerial Photo circa 1960's

After classes end this coming Spring quarter and the students move out of Mesa Court for the summer, UCI will have their food service vendor construct a temporary dining hall inside trailers located in a parking area. The selected Design-Builder will then be free to proceed with demolition of Mesa Commons and construction of the new project on its footprint.

It is imperative that the new housing and support functions be operational for the start of Fall quarter in late September 2018, therefore a 26 month total design and construction schedule is allowed for in the Prime Contract. The successful DB team will be given Notice to Proceed on May 2, 2016 and must reach Substantial Completion by August 1, 2018. Wait a minute – those dates add up to 27 months! Yes, UCI has added a 30 day allowance for severe weather into the schedule; if none of these days are needed we must finish on July 1, 2018 as UCI owns all unused weather days. Weather days must be justified by showing an impact on the Critical Path of the CPM and are "excusable" but not "compensable" delay days.



Major Project Phases

Our team, like the other competing teams, has had a series of four one-on-one meetings with UCI's Campus Architect during the past ten weeks of the proposal period. These meetings are for our designers to show UCI the progress of our conceptual design and get feedback on things that are considered good and desirable and those that are not well liked. UCI's goal in these meetings is not to dictate a design to the teams, but to help massage the designs so that all three proposers have a design that meets UCI's minimum requirements.

1. Encourage student interaction and support academic development.
2. Building entries from outdoor green space serve as the "front door" to Mesa Commons Hierarchy of public to private space enhancing:
   - Student and staff experience,
   - Reinforcing campus circulation, and
   - Outdoor interaction/dining space and public space.
3. Buildings and landscaping should enhance or frame important view corridors.
   - Building heights will be variable but will not exceed 6 stories, and
   - Native landscaping will be consistent with LRDP & UCI Green and Gold Plan.
4. Maximize natural lighting; use high performance clear glazing. Design roofs to reduce heat gain and support photovoltaic cells.
5. Primary materials/colors: Cement plaster, modular stone/brick, cast-in-place concrete and architectural metal, with medium to strong earth tones.
6. Per UC Policy, project will be LEED Silver. Additional technical score points for designs exceeding LEED Silver.

UCI stated Design Parameters

The RFP calls for "blind evaluation" where the proposing team is not allowed to indicate the names of the firms or individuals involved on any of the work product submitted, thus forcing the evaluation committee to score completely on merit versus reputations, friendships, past history and similar that can sway selections unfairly. As the Campus Housing administrators are voting members of the selection committee, our team has had no opportunity to interact

with them during the proposal period, relying solely on the Campus Architect to relay to us the important needs and desires of that group, who will be the ultimate client. Upon award of the contract, however, our team will need to quickly embrace the comments and desires of the Housing group in order to refine our design to their satisfaction.

Our team has identified that a major factor in winning this job will be in giving UCI more than they asked for in the RFP. The Campus Architect has conveyed to us that "beds are their currency", meaning that the more students the project can house, the more income it will generate for the campus operations. With this in mind, our design team has fit 780 beds into the project, 42 more than the minimum requirement. Other factors include sustainability, room sizes, longevity of materials, aesthetics, advanced functionality and similar. Below is a summary of key Enhancements that our team is proposing in order to capture more technical points in the evaluation:

Item	Required	Provided	Enhancement
Student beds	738	780	6% more
Dorm room size	220 sf	245 sf	11% larger
Dorm room volume	8' ceilings	10' ceilings	25% increase
Coffee house	None	Full service space	Revinue generating venue
Offsite Bridge to Campus	Add-Alternate price	Included free	$1,000,000 value
Photovoltaic Panels	Add-Alternate price	Included free	$200,000 value
Solar Hot Water Heating	Add-Alternate price	Included free	$250,000 value
Superstructure type	Wood framed	Concrete	$60M Lifecycle Cost savings at 45 Years
Student bath janitor access	Through bedroom	Direct from hallway	Minimize student disruption
Lighting	Flourescent	100% LED	$25,000 Annual power savings
Power Outlets	Per Code	Added USB Charging	Supports the "plugged-in" lifestyle
Preserve Existing Trees	None	3 grand trees saved	Adds maturity to community feel
LEED Rating	Silver	Platinum	Recognized Excellence

One word of caution, however, is that all these enhancements don't come free. UCI has specified a Maximum Acceptance Cost ("MAC") of $94,886,000 for the project – any proposal above that amount will be deemed "non-responsive" and the bidder will not only be excluded from award of the job, but the $1 million stipend will not be paid to that team either. Even if our team turns in below the MAC value we could lose out to another team by not capturing enough extra technical points to compensate for the additional cost added by these enhancements. Our upper management has indicated that we need to price this job aggressively in order to secure the win. Throughout the past ten weeks our Conceptual Estimators have worked diligently with the design team to ensure that we don't allow the scope of the project to exceed the MAC value, but it all comes down to the wire when the subcontractor bids come in to validate the conceptual pricing used.

Almost there… let's finish these last tasks and win this thing!

V. PROBLEM OUTLINE

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

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 earlier or later in the construction phase), consider these a "Time Warp" and answer them with that understanding.

0.1 EARLY DELIVERABLE - BIOGRAPHIES

Although this item has past, as a requirement of the Pre-Problem Statement, your team's final score may reflect a small point deduction if you failed to comply with this item in a timely and professional manner.

0.2 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.

0.3 TIMELINESS OF PROPOSAL

One (1) hard copy and two (2) electronic copies of your proposal are due at Midnight, as per the Time Table in Section I. A ½ point penalty will be deducted from the team's score for each minute the proposal is turned in late.

1. General Summary

Written by Rod Hammett

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 Contingency, and determine what the bid price of the project should be.

General Summary Deliverables:
Submit (1) one hard copy and two (2) electronic copy in native format (Excel) of your General Summary.

Submit (1) hard copy and (2) electronic copies of a short narrative explaining your chosen Fee and Contingency rates.

2. Estimate

Written by Stephanie Wilborn and Jay Larson

Part A: Concrete Estimate

A key part to any Hensel Phelps project is the self-performed concrete. This is an opportunity for Hensel Phelps to set the pace of the job, and to help increase the overall profits. In preparation for the UCI Mesa Court Expansion Project, your team has been tasked to perform a thorough review of the concrete scope of work. It is your job to determine the overall cost for Hensel Phelps to self-perform the concrete work.

Use the provided contract drawings to quantify, price, and estimate the following concrete components:

- Decks
  - Levels 1 through Roof
- Walls and Columns
  - Basement Level
  - Levels 1 through 6
- Foundations
  - Footings for Basement and Level 1
- Slab on Grade
  - Slab on grade for Basement
  - Slab on grade for Level 1
- Other Concrete Items
  - Level 2 Curbs (excluding shower curbs)
  - Roof Curbs

In addition to the concrete estimate, you will also need to quantify, price, and estimate the formwork line items applicable to the components above.

To help you perform your task, refer to Section X for the following:

- Concrete Estimate Spreadsheet (Section X.2.1, Tab 1) - This spreadsheet has been formulated for your use in compiling data in the same format as the other teams. Use this spreadsheet to fill in the quantities, unit costs, tax and markup. Yellow cells indicate input cells, although all cells might not be necessary.
- Local Ready Mix Pricing Sheet for Concrete, Historical Waste Factors, and Pumping Rates (Section X.2.2) – This resource is to be used to determine pricing for concrete
- Hensel Phelps Historical Cost Data (Section X.2.3) – This resource is to be used to determine any other costs associated with the material, labor, and equipment costs
- Company Historical General Conditions (see X.3.3) – This resource is to be used to determine the General Conditions portion of the concrete scope
- Other concrete items have been taken off by another Hensel Phelps estimate team. There numbers have been included in the spreadsheet under “Additional Concrete Costs.” You are to include this number with your overall estimate.

Clarifications and Exclusions:

- In order to keep all teams' estimates consistent, do not modify Concrete Estimate Spreadsheet.
- Do not include additional material or labor to account for patching of exposed concrete walls
- Assume finish is "As-Cast" and needs to have a finished look when the forms are removed.
- Any other concrete not listed above.

Part B: Concrete Pump

Fast forward to a month before concrete is supposed to start. You're a field engineer assigned to the concrete scope and your superintendent approaches you with a task. To procure the job, Hensel Phelps used historical unit prices to determine the equipment cost of placing the concrete. However as the start approaches, your superintendent wants to validate the amount and make sure there's enough money.

For each scope of concrete listed below (example: Level 1 Footings), your team will determine the size of the pump for each pour, the total amount of time each will be used for, and the total cost. In addition to this, your team must indicate where the pump will be placed for each pour using the Pour Sequence PDF.

Use the concrete pump information provided in Section X.2.2 and Section X.2.5 to help determine the size, production rates, time, cost, and pump location. Remember even though larger pumps can produce more, they also cost more per hour. Civil drawings will need to be referenced as well to identify where pumps may be placed for pours. Based on the information provided, you will need to determine which pump size is correct for this task.

To help you perform your task, refer to Section X for the following:

- Concrete Estimate Spreadsheet (Section X.2.1, Tab 2) - This spreadsheet has been formulated for your use in compiling data in the same format as the other teams. Use this spreadsheet to fill in appropriate fields. Yellow cells indicate input cells, although all cells might not be necessary.
- Pumping Price Sheet and Pumping Tables (Section X.2.4) – This resource is to be used to determine pump sizes and pricing for concrete
- Pour Sequence Plan Views (Section X.2.5) – This resource is to illustrate how pours are broken down and what elements are in each respective pour

- <u>Pumping Costs for Specific Areas [determine # of pumps, size(s), and total cost]</u>
    - Basement Footings
    - Basement Walls and Columns
    - Level 1 Footings
    - Level 1 Slab on Grade
    - Level 3 through Roof Slab on Deck
    - Level 4 Walls and Columns

Estimate Deliverable:
Submit (1) one hard copy and two (2) electronic copies in native format (Excel) of your concrete estimate.

Pump Deliverable:

1. Submit (1) one hard copy and two (2) electronic copy in native format (Excel) of your concrete pump estimate.
2. Submit (1) one hard copy and two (2) PDF version of your concrete pump placement for each pour.

3. GENERAL CONDITIONS

Written by Amanda DeTemple

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

Your team is to complete a detailed breakdown of the project's General Conditions. This breakdown will allow your team, as well as Upper Management, to confirm the staffing plan, mobilization, operating, and other resource costs that will be spent during the project.

The Supplemental Information attached in Section X will depict descriptions of staff responsibilities and a list of company historic billing rates and typical job costs.

Please note that the staffing section of the General Conditions are to be completed for Hensel Phelps staff only.

Please note the following:

A. With the exception of self-performed work (i.e. concrete) the General Conditions include salaried on-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, your team will need the assistance of the estimating department. A full time estimator should be considered in the General Conditions for a period of time to assist the Project Manager with subcontractor bid packaging, scope breakdown, purchasing, and contract issuance.

C. The initial staff selection indicates that all of your employees are coming from jobs in the same general vicinity and will not need to be relocated when starting this project. However, it is not certain that all future staff members will be from the same local area.

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

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

Please prepare the following documents:

Part A: General Conditions

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

Part B: Staffing Matrix
Prepare a Staffing Matrix showing the duration and period each staff member is on the project on the form provided in Section X. Staff descriptions are provided in Section X.

Part C: Design Management

Time warp to later in the project during the Construction Documents phase of design.

In the design meetings our team has been asking UCI who will be doing their furniture planning, as our team needs to interface with them to coordinate the finishes. UCI has concluded that they do not have anyone on board for that and are interested in having our team provide that service as a change in scope. The scope/description of change is to provide selection of furniture pallets and writing specifications that the University's purchasing department can use to bid out the furniture package.

Hensel Phelps has provided UCI a proposal for this additional work, see Exhibit 3.5. UCI has reviewed the cost proposal and is questioning the inclusion of Design Manager in the submitted costs; referencing paragraph 7.3.3 of the Contract General Conditions, see Exhibit 3.6.

Please provide a response to UCI outlining why our team feels that reimbursement for Design Manager is a justifiable cost.

General Conditions Deliverable:
Submit (1) one hard copy and (1) one electronic copy in native format (Excel) of your General Conditions.

Staff Matrix Deliverable:
Submit (1) one hard copy and (1) one electronic copy in native format (Excel) of your Staffing Matrix.

Design Management Deliverable:
Submit (1) one hard copy and (1) one electronic copy (pdf) of your explanation.

4. PROPOSAL SUMMARY (TAB ANALYSIS)

Written by David Shellman

The proposal summary is the most important part of bidding a project. In this section you will be responsible for closing the bid tabs for the following trades: Glazing, Drywall, Paint, HVAC, and Final Clean. When evaluating these proposals keep in mind that these cost will be carried forward to the General Summary section of the project.

Proposal Summary Tabs or Bid Tabs are used to compare multiple subcontractor bids received for each scope of work. This tabular format allows you to see scope gaps and provides a comprehensive summary of the subcontractors bid status.

The senior estimator in charge of this project has created proposal summary sheets with check questions to determine if the subcontractors have the correct scope per plans and specifications. You may choose to modify these templates by adding or changing line items if you desire. The “Scope Desired” column contains a budget the estimator has come up with to show what he feels is the correct amount. These values are not always hard numbers derived from subcontractors so they will vary from the actual proposals.

Choose your subcontractors carefully to ensure they will perform the correct scope as opposed to the lowest price. We encourage teams to round to the nearest $1,000 to allow for quicker summation of the Proposal Summaries.

Note: If subcontractors have not included a certain cost “Plug Numbers” should be used to complete their estimate to reach their final number. “Plug Numbers” are values established by your estimating team or through breakout numbers from other subcontractors in order to “fill in the gaps” for subcontractors that did not include that cost.

Part A: HVAC Proposal Summary

The HVAC tab has been completed by the senior estimator and needs to be summed up. Take the HVAC tab provided in X.4.1 and make a selection on who provides the “best value” for the project. Add up each column to determine the total purchase value for the HVAC scope.

Submit (1) hard copy and (2) electronic copies in (Excel or pdf) of your completed proposal summary for Part A with the selected subcontractor clearly identified.

Submit (1) hard copy and (2) electronic copies of a short narrative as to what qualified them as the “best value”.

Part B: Proposal Summaries for Glazing, Drywall, Paint, and Final Clean

Included in Section X.4.2 are the subcontractor proposals for each scope of work requested for review by your senior estimator before submitting to the owner. Carefully read through each proposal and fill in the missing line items on the Bid Tabs provided in Section X.4.1, using plug numbers where necessary. Once you have completed your review, select a subcontractor and indicate the total cost for their feature of work.

You will be able to speak with each subcontractor “by phone” to ask general scope questions not already included in their proposals or to clarify inclusions or exclusions within their

proposals. A representative from each subcontractor will visit your room between 2:30 PM and 7:00 PM. Each trade will be represented by a separate member of the Hensel Phelps team, giving you the opportunity to interview multiple subcontractors at once. You will be allotted ten (10) minutes to conduct all of your interviews. Please note that this is intended to be a realistic exercise. Your subcontractors may be rude or evasive; this is not in an attempt to frustrate the team, but rather to represent the very real difficulties involved with this section of the proposal.

Use the bid amounts selected in Part A and B to complete the General Summary Tab in Section 1 of this problem statement.

Submit (1) hard copy and (2) electronic copies in (Excel or pdf) of your completed proposal summaries for Part B with the selected subcontractors clearly identified.

5. SCHEDULE

Written by Jonathon Peltz and Russ Nelson

Part A: CPM Schedule

The project schedule is a fundamental tool in properly planning and managing a project. A well-developed schedule will communicate and direct all parties along the path to success. As part of your review with upper management, you will be required to present a complete, workable Critical Path Method (CPM) Schedule and Short Interval Production Schedule (SIPS). The CPM and SIPS will effectively outline your plan of attack for the Mesa Court Expansion Project (MCEP). These schedules shall be comprised of the following:

General CPM Schedule Criteria:

1. **Presentation Criteria:**
    a. Format:
        i. At a minimum show the following columns to the left of the timescale: Activity ID, Activity Description, Original Duration (OD), Early Start (ES), Early Finish (EF), and Total Float (TF) per activity (see Figure "A" example below):

Figure A:

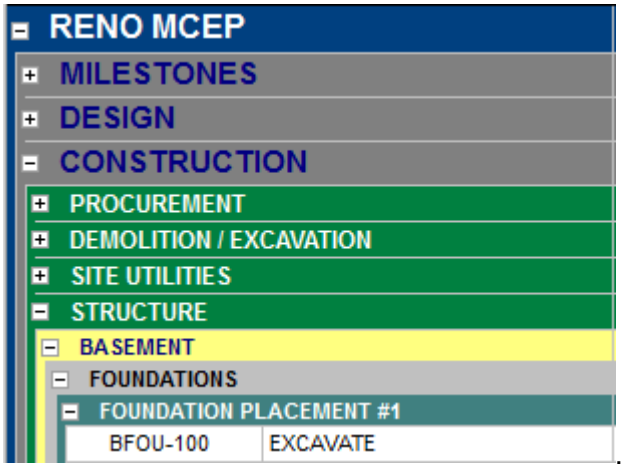
Activity ID	Activity Description	Orig Dur		Early Start	Early Finish	Total Float
MILESTONES						
MILESTONE SUMMARY						
CONTRACTUAL MILESTONES						
DESIGN						
MILESTONE #1 -- NOTICE TO PROCEED						
MM-01	Notice to Proceed	0		19JAN10A		

        ii. Activity count: 200-400 Activities.
        iii. There should be a continuous logic flow of critical path activities from Notice to Proceed, Design, Fabrication and Delivery lead times, Structure, Rough-In, Finishes, Punchlist and Commissioning.
        iv. Clearly identify the critical path of the schedule.
        v. Organize your activities so they are easy to read, are grouped intuitively, and the schedule "flows" well.

2. **Work Breakdown Structure (WBS):**
    In order to maintain flow and composition, schedules are typically broken down by a WBS. The WBS is the outline of the schedule, and acts as an umbrella to captures the theme or specific nature of an activity set. A WBS can contain multiple layers and subsets to aid in organization of activities, or it can be simply based on the structure and complexity of the schedule. Note that there is not a start to finish relationship for a WBS, but rather multiple WBS will need to be overlaid in order to meet the project schedule requirements.

    For the purpose of this activity, assume that your superintendent has created a basic WBS for you to follow. You can embellish the WBS within this skeleton as much as the schedule requires, but you must keep the initial structure true to what has been provided (see Figure "B" example below):

Figure B:



MCEP WBS. Maximum Working Days (WD) shown after each WBS which you are not required to match exactly, however they are given to you as a guide. Each WBS level should contain a breakdown of activities which demonstrates knowledge of the project and systems to ensure a complete and functioning facility.

1. Milestones (Constraint Dates)
    a. Notice to Proceed (NTP) May 2nd, 2016
    b. Rain Days - 30WD days allowed, however the Owner owns all rain days on the project. If 0 Rain Days are used the project must complete 30 WD prior to the Substantial Completion Date
    c. Substantial Completion August 1st 2018
2. Design - The design package must be approved before that scope of work can begin.
    1. Design Package 1 – Demo & Site Utilities (34 WD)
    2. Design Package 2 – Structure (65 WD)
    3. Design Package 3 – Skin (100 WD)
    4. Design Package 4 – MEP and Finishes (115 WD)
    5. Design Package 5 – Site Finishes (80 WD)
3. Construction
    1. Procurement (245 WD)
        i. It is imperative for project success to capture and track all long lead item procurement for MCEP.
        ii. Activities should encompass all scopes required to execute the job. (see below for required items)
    2. Demolition / Excavation (85 WD)
        i. MCEP requires existing structures to be demolished and site cleared prior to construction.
        ii. Activities should show a clear sequence of demolition the team proposes.
    3. Site Utilities (100 WD)
        i. Provide enough activities to demonstrate all utilities installed to support MCEP.
    4. Structure – There are only (2) sets of wall forms and (2) sets of deck forms.
        i. Basement (60 WD)
        ii. Main Podium (94 WD)
        iii. South Podium (93 WD)

iv. North Tower (101 WD)
v. Center Tower (104 WD)
vi. South Tower (104WD)

5. Exterior & Skin
   i. Main Podium (60 WD)
   ii. South Podium (60 WD)
   iii. North Tower (114 WD)
   iv. Center Tower (100 WD)
   v. South Tower (100 WD)
6. Site Work (155 WD)
7. Rough Ins
   i. Basement (125 WD)
   ii. Main Podium (105 WD)
   iii. South Podium (80 WD)
   iv. North Tower SIPS - Put 1 activity and use your SIPS schedule to determine the duration and ties
   v. Center Tower SIPS – 1 activity same as above
   vi. South Tower SIPS – 1 activity same as above
8. Elevator (130 WD)
9. Finishes –
   i. Main Podium / Kitchen (130 WD)
   ii. South Podium (130 WD)
   iii. North Tower SIPS – 1 activity same as above
   iv. Center Tower SIPS – 1 activity same as above
   v. South Tower SIPS – 1 activity same as above
10. Punchlist
   i. Basement (20 WD)
   ii. Main Podium (30 WD)
   iii. South Podium (20 WD)
   iv. North Tower SIPS – 1 activity same as above
   v. Center Tower SIPS – 1 activity same as above
   vi. South Tower SIPS – 1 activity same as above
11. Commissioning (109 WD)

a. CPM Schedule Body

i. Milestones:
   a. Notice of Award (Start: May 2nd, 2016)
   b. Rain Days. (30 WD) - The owner has allowed 30WD rain delay days past the substantial completion date. However, if not used then rain days must be returned to the owner.
   c. Substantial Completion. Finish: August 1st, 2018.
   Substantial Completion is defined as “the building can be used for its intended purpose.” In order to satisfy this requirement, all construction activities shall be substantially complete, the building systems must be operational and all code required inspections must be complete including State Fire Marshal Sign Off.

ii. The schedule should account for all state of California holidays being non work days.

iii. Design packages are often used to allow construction to begin while the design is being completed. Don’t forget design development drawings must occur before design packages for construction can begin. Design packages #3, #4 & #5 cannot begin until #1 and #2 are complete.

iv. The schedule should depict submit/approval, fabrication and delivery of the following critical items at a minimum.
   a. Elevators (80 WD)
   b. Mechanical (60 WD)
   c. Electrical Systems (80 WD)
   d. Glazing/Skin (140 WD)
   e. Kitchen Equipment (70 WD)

v. The Main Podium contains Level 1 of the North and Center Towers. The South Podium contains Level 1 of the South Tower. Each Tower contains Levels 2, 3, 4, 5, 6 and Roof. Each WBS category should contain work for each level. Consider providing another level of breakdown for each main level of the WBS for each floor to show work sequence through each level of the project.

Part B: Short Interval Production Schedule (SIPS)

a. A (Short Interval Production Schedule) SIPS is a schedule developed to detail the necessary day-to-day production or task-to-task production during any repeatable construction project. It details scheduling at the crew level and must rely on exact information that is vital to the successful completion of any construction task. The most useful cases where a SIPS can be beneficial is for a project that has many highly repeatable activities, such as apartments, hotels, office buildings and even schools. Typically, these projects will have a standardized interior floor or wing layout that makes the use of a SIPS desirable. See the file "X.5.1.1 Short Interval Production Schedule" for use in this exercise.
   a. A SIPS is to be used for the repetitive nature of the buildout of the interior of the MCEP towers.
      i. See the WBS for Rough-Ins and Finishes from CPM for overall durations: South Tower, North Tower and Center Tower.
   b. No more than (2) crews for each activity can be utilized at once to complete the towers.
   c. Be sure to verify the SIPS and CPM are coordinated. (i.e. start and end dates must be the same on the SIPS and CPM schedule)
      i. Keep in mind when using the SIPS. The CPM portion does not have to be broken down as thoroughly as the SIPS schedule. (i.e. one activity for buildout of towers is acceptable in the CPM.)
   d. A template has been provided with the file "X.5.1.1 Short Interval Production Schedule" that must be utilized in developing the SIPS for the MCEP Towers.
   e. Each activity is a 1 week duration.
   f. You must complete the buildout of all (3) towers in 45 weeks or less to maintain an on time schedule.
   g. Review the file "X.5.1.1 Short Interval Production Schedule" for any additional requirements.

Part C: Rain Delay Letter Due

a. Time warp to May 15th – 22nd 2017. There is a large rain storm that hits Irvine, CA. There are a lot of trades that are effected and do not work. You'd like to use (6) Rain Days from your allotment, however the owner noticed that there are some trades that were still able to work despite of the rain.

b. Look at your schedule and write a formal letter explaining what activities were slowed down because of the rain and what trades were able to still work.
c. The letter should explain why 6 rain days are needed to be used despite being able to have some trades work.
d. Format this as a formal impact notification email to the owner using backup from the CPM and/or SIPS schedule.
e. The letter should be addressed to a Mr. Tim Allen – Project Manager for UC Irvine.
f. The letter should be a single page, professionally formatted and written with no spelling or grammatical errors.

Schedule Deliverables:

1. **Complete CPM Schedule:** *(Two (2) Electronic Copies of Schedule for MCEP in Native Format on a thumb drive).*
2. **Required CPM Reports:** *(Include Two (2) Electronic and Two (2) hard copies of each report)*
    a. **Complete CPM:** *Filtering all activities sorted by start date. No WBS provided.*
    b. **Primary Critical Path Report** *No WBS provided.*
    c. **Complete CPM with WBS:** *Filter all actives by early start.*
3. **Completed Tower SIPS:** (*(Include Two (2) Electronic and Two (2) hard copies of the Tower SIPS)*
4. **Rain Delay Letter:** (Include (1) Hard Copy and (2) Electronic copies in PDF Format.)

6. COORDINATION OF WORK

Written by Brendan Miller

PART A: Demolition and Site Utilities

(Time warp to Post Project Award, Demolition & Site Utilities Phase)

Congratulations, you were just recently promoted to the role of Area Superintendent on the UC Irvine Mesa Court Expansion project and will be responsible for managing the sequence of work for the Package 1 – Demolition and Site Utilities scope. This is a scope that has been identified as an "at risk" critical path activity within the CPM schedule with nearly zero float.

On Monday your team received notification from the UCI permitting office that the Package 1 construction drawings have been stamped and approved. Your team is scheduled to commence work on the Package 1 scope following a scheduled charrette that you have with the UC Irvine Facilities Management team that is responsible for all of the campus utilities and management of the other 95 operational buildings that are fed from the campus systems. The intent of this meeting is to walk their key management personnel through your team's Site Utilities Coordination Plan in order to identify utility tie-in points to the campus system and minimize scheduled system impacts to the other operating UCI buildings throughout the campus.

Prior to this meeting, your Project Superintendent instructs you to develop a comprehensive Site Utilities Coordination Plan which your team can use during the presentation to clearly illustrate the location of the following information to the UCI Facilities team:

- Site Utilities to be Demoed
- Site Utilities to be Installed
- Existing Site Utilities
- Crossover Points between Utilities to Determine Installation Sequence
- Location of Tie-In Points to the Campus Utility Systems
- Location of Tie-In Points that will require coordinated shutdowns with UCI

Section X.6.1.1 includes all the design documents that you need to develop your Site Utilities Coordination Plan. Using Section X.6.1.2 as the background drawing, this coordination map must include the following:

- Labeled Elements by Service Type:
  - Natural Gas
  - Domestic & Fire Water
  - Sanitary Sewer
  - Storm Drain
  - Electrical
  - Telecom
  - Irrigation
- Differentiation between Demoed and Installed Lines
- Corresponding Legend
- This drawing is to be produced in an electronic format

Part B: Food Service Equipment Infrastructure

(Time warp to Post Project Award, Level 1 Slab on Grade Phase)

The UCI Mesa Court Expansion is a design build project comprised of (5) distinct phased design packages each of which will require their own separate design & permitting process. These five packages are:

1) Demolition & Site Utilities
2) Structure
3) Skin
4) MEP & Finishes
5) Site Finishes

You're an Office Engineer responsible for the Food Service Equipment scope within the Level 1 Dining Area. During this week's staff meeting, the Area Superintendent that is managing the Slab on Grade placements has just communicated to you that the team's first pour for the Level 1 Dining Area is 6 weeks out. Design Package #2 for the Structural scope was approved two months ago, however Design Package #4 which includes the Food Service Equipment scope is still at the 90% CD level and does not yet include the necessary information that your Mechanical, Electrical, Plumbing, and Fire Protection (MEPF) subcontractors need to determine under slab rough-in requirements for the various food service equipment throughout Level 1.

It will be your responsibility to identify from the manufacturer's product data cut sheets and specifications what each type of equipment will require for MEPF rough-in and then generate a Food Service Equipment Rough-In Schedule for use in the field prior to placement.

Appendix X.6.2.2 includes all of the design documents & product cut sheets that you need to develop a Food Service Equipment Utility Rough-In Schedule. Using the Excel template provided in Appendix X.6.2.1, you are to identify the MEPF requirements for Food Service Equipment Items #300-399 shown on drawing sheet QF415 for the Mongolian Grille Sauté Platform. This schedule is to include:

- Electrical Power Requirements (i.e. 120V, 1ph, 15A)
- Plumbing Requirements (i.e. Water, Waste, & Gas identified by size/type)
- Mechanical Requirements (i.e. 10" x 8", 800 CFM Exhaust)
- Fire Protection Requirements (i.e. Ansul System)

Please note the following:

- If nothing is required for that Item #, the cell is to be left blank.

Demolition and Site Utilities Deliverables:
Submit (1)11"x17" hard copy and (2) electronic PDF copies of your completed Section X.6.1.2

Food Service Equipment Infrastructure Deliverables:
Submit (1)11"x17" hard copy and (2) electronic PDF copies of your completed Section X.6.2.1

7. Design Change Management

Written by Kyle Nelson

(Time warp to Post Project Award, Preconstruction Period)

Your team has been awarded the UCI Mesa Courts project and has jumped into preconstruction; finalizing design, construction budgets and excited to get to work. Initial structural packages have already been issued, site prep has commenced and foundation work will begin shortly. The owner was very pleased with your final proposal. Although your team's overall design concept has all the things the owner is looking for (and more), there is additional project funding that has been made available through value engineering and a generous donation from well-known local philanthropist and socialite Dr. Rodney Hammett. Your design-build team is being asked to take this additional funding and come up with some design enhancements that add even more of a "Wow Factor" to the buildings and highlight this exciting new project that is sure to bring attention to the campus.

After discussions with the design team and owner stakeholders, you have a goal of providing three design change concepts that will provide the "Wow Factor" the owner is hoping for. This is where you currently stand with your three design change concepts:

Executed Design Change #1: Northeast Exterior Stair Enhancements
(Status – Complete…FOR REFERENCE & EXAMPLE ONLY)

- Summary: The design team has already finalized one enhancement that is currently shown in your drawings: improving the northeast staircase. The initial design of the northeast stairs in each building left the assembly completely outside the building. To enhance the aesthetic appeal of these building corners, an exterior curtain wall was added to encapsulate the stairwell and help it become and architectural feature. The curtain walls will consist of galvanized HSS steel supports, perforated steel panels and vision glass panels with painted frames.
- Overall, the change enhances the building's exterior curb appeal while offering safer fall protected stairwells that allow natural light and match the design and construction intent of the project…nice work!

Design Change #2: Resident Life Coordinator (RLC) Elevator Access
(Status - In progress)

- The north building houses a fulltime resident life coordinator that is there to assist students in their quality of life. The RLC has an apartment located on the west end of the 2nd floor…*furthest* from the stairs and elevator on the east end of the building. Your design team has learned that owner stakeholders have contemplated adding an elevator to the outside of the RLC room to allow private ADA access for the fulltime coordinator living in the building, and you smell an opportunity to capture this as one of your design enhancements.
- While adding an elevator to the RLC quarters would certainly add "wow factor", you have not yet fully evaluated the effects this possible design change would have on the project budget, design and construction schedule and constructability. What type of elevator could be used for this application, and is it too pricy and late in the game? You have

some initial concept sketches of the idea (see Section X.7.1), but as a team you need to determine how viable this idea is.

Design Change #3: Great Room Enhancements
(Status – Pending)

- For your last design enhancement you team has some work to do. You aren't exactly sure what the improvement will be, but you have settled on an area to focus on: the Great Rooms.
- The Great Rooms were an important selling point for the owner as they seek to provide a living space for their students that promotes interaction and relationship building. With that in mind, The Great Rooms seem like a logical place to brainstorm and come up with a design enhancement that will meet or exceed the owner's expectations.
- As a design/build team you need to come up with an enhancement to the great room and evaluate impacts this change will have to the project budget, design & construction schedule and constructability and present it to the owner.

As a team, you have already finalized the design change concept for item #1 above. Now look at items 2 and 3 and focus on what needs to be done to finalize and evaluate these ideas before presenting them to the owner. While coming up with good ideas is something your team is quite proficient at, there are still realistic constraints that should keep your ideas in check i.e., **project budget, design & construction schedule and constructability.** Keep in mind…You have additional funds and a generous donor, but the funds should not be used frivolously and cannot negatively impact the project schedule or overall design goals for the project. Proposing a poor idea to the owner at this early stage may affect how they view your team's decision making.

Change Management Deliverables:

1. Design Change Item #2: Before going any further with the RLC elevator design concept, your team needs to determine internally if the idea is viable and worth formally presenting to the owner. Your Project Manager would like your opinion on this proposed change before sending it over to the owner. After your review, send an email to your project manager that evaluates the impacts the RLC elevator could have on your project budget that would require funding from the Owner/Dr. Hammett. Include in your email what you foresee as possible design/construction schedule and constructability concerns (if any). From your initial review, would you give this idea a thumbs up or down?

    a. Submit an electronic copy of your email with any optional attachments in PDF format.

    This email is an overall summary and there is no need to provide detailed cost estimates or construction schedules. You simply need to show you project manager that you are evaluating the pro & cons effectively.

2. Design Change Item #3: Provide an additional letter to the owner stake holders and Dr. Hammett that outlines your proposed design enhancement to the resident Great Rooms. In selling this design change, be sure to provide an analysis similar to what was provided

for design change item # 2 above. Please provide a visual aid of you enhancement that helps illustrate the concept.

a. Submit an electronic copy of your letter and visual aid attachments in PDF format.

8. PERSONNEL ISSUES

Written by Kyle Nelson

****EARLY DELIVERABLE – DUE AT 10:00AM****

As a project manager for Hensel Phelps you have a lot on your plate. One of you biggest priorities that can't be lost in the day to day minutia of a project is staff morale, training and growth. You want to provide a work environment where everyone on your team is happy and productive. Recently however, there is a growing concern regarding the productivity and overall attitude of one of your office engineer, Charlie. Charlie has been with Hensel Phelps for a little over three years. He was assigned to our job highly recommended from his last assignment as a field engineer and meshed well with the team. Over the last couple of months his attitude and work ethic have seemed to decline. He is not fulfilling commitments, doesn't participate in team meetings and seems to be constantly butting heads with some of the office staff.

You haven't had much time to address the situation with Charlie, but you have had some conversations with Pete, your Project Engineer (and Charlie's supervisor), regarding his behavior. You had initial hopes that Pete could help mentor and pull Charlie at of this funk until you received the email below from Pete while out of town at a DBIA conference:

Hey (Insert Your Name Here),

Hope everything is going well at your conference. I'm sorry to bug you with things like this while you are over there, but I need to fill you in on some things that have been going on with Charlie in your absence.

His attitude has gone from bad to worse these past few days. He has not been to any of our morning office huddles. He has some critical deliveries this week and not having his input in our morning conversations is frustrating. A couple of times, he has actually been here and when I ask him to step into our meeting he tells me he is busy…he was on Facebook.

His phone calls with subcontractors are argumentative and he leaves work for home at lunch almost every day. I tried talking to him and it went nowhere.

I am out of ideas at this point and I am ready for him to go. Let me know what you would like me to do and we can talk more when you get back.

Thanks,

Pete

You need to address the situation when you return. Respond to Pete's email and also send an email to Charlie setting up a meeting upon for when you get back.

Be prepared to sit down with Charlie when you get back and get everything on the right track.

Part A: Send a response email to Pete to address his concerns and direct him on what you would like him to do until you return. Submit one (1) hard copy at the 10:00AM Meeting and submit two (2) electronic copies with your complete submission at 12:00AM.

Part B: Send email to Charlie to set up a meeting with him upon your return. Craft your email the best way you see fit given the circumstances with Charlie. Submit one (1) hard copy at the 10:00AM Meeting and submit two (2) electronic copies with your complete submission at 12:00AM.

Part C. Be prepared to sit down with Charlie when you return. You need to evaluate the situation and help repair the current situation that his harming your teams productivity and morale.

9. SAFETY

Written by Amna Chaudhry

Part A: Activity Hazard Analysis

Since this project consists of three different buildings to be constructed, it was decided to have all three towers going at the same time. This was great for the schedule, however having all three buildings going up at the same time caused serious safety concerns, especially with fall protection. The subcontractor who will be placing the glass fiber reinforced concrete (GFRC) panels will be using the tower crane to place them. As an Area Superintendent you have requested the Activity Hazard Analysis, (AHA) from the subcontractor to review, prior to your preparatory meeting regarding the GFRC panels. The AHA is a very important safety document that is required by each subcontractor that comes on site for the work that they will be performing. This documents states each hazard that workers could potentially come across while doing the work pertaining to their scope, it also states what steps they will take in order to mitigate this hazard.

As you are reviewing the AHA which was submitted, you noticed that the subcontractor missed some key components to fall protection. Since you are the Area Superintendent it is your duty to make notes of all the deficiencies in the AHA and ask the subcontractor to revise and resubmit. Go through the AHA and make all the corrections which you believe the subcontractor should have stated in their AHA pertaining to fall protection.

Part B: Toolbox Talk

Since all three towers are going up simultaneously, the site is quite crowded with material and equipment. As an Area Superintendent you thought it would be beneficial to prepare a Toolbox Talk pertaining to equipment and 'struck by' hazards with all the activity that is happening on site.
In construction, safety plays a vital role. Preparing an effective toolbox talk shows the importance of safety and your dedication to safe work practices. In Section X.9.2 is a Toolbox Meeting Template for you to use and prepare you Toolbox Talk Agenda. Be as detailed as possible and to include all potential 'struck by' hazards.

Safety Deliverables:
Submit (1) one hard copy and (2) electronic copies of your reviewed AHA
Submit (1) one hard copy and (2) electronic copies of your struck by hazards toolbox talk.

10. SITE UTILIZATION

Written by Eduardo Texeira

Planning, Site Layout and Utilization.

Upper management has stressed to you the importance of a well planned and executed site utilization plan. Site Utilization planning has implications for project safety, construction efficiency, scheduling, and performance of a project. Poor site planning and management can lead to work delays, misplacement of materials, double handling of materials, schedule delays, capital loss, and unsafe working conditions. Despite the importance of a well prepared site utilization plan, it is often done in a speedy manner or overlook completely.

To demonstrate how your team will efficiently prepare a site utilization plan, upper management has requested that you submit a site utilization plan to support the definable features of work described below, and your answer to questions A and B.

Part A: Demolition Site Utilization Plan Using Sheet C-101

Using Sheet C-101, develop a site utilization plan during demolition phase with the following criteria:

1. Site plan clearly displaying SWPP plan.
2. Display proper location of materials to support construction.
3. Proper materials used to comply with local jurisdiction SWPP requirements.
4. Proper designated laydown and site plan to support demolition.

Part B: Structure Site Utilization Plan

Using Sheet L4.01, develop a site utilization plan to support installation of building structure with the following criteria:

1. Display proper location of equipment (Ex. Crane)
2. Display general conditions items required to support project construction.
3. Crane:
    a. Display proper crane type.
    b. Display proper crane location.

    Note: In order to choose the correct crane, consider the following:

    a. How many pounds does the largest GFRC Panel have? (GFRC panels weight 17 lbs. /ft².)
    b. The working radius of the crane. Minimum 245’-0”
    c. Maximum Load Capacity.
    d. Crane location.

Utilize Section X.10.1 and X.10.2 to help you determine the correct crane.

Part C: Noise Mitigation

(Time warp to Post Project Award, Preconstruction Period)

The Mesa Court Expansion project site is located on Mesa Dr., Irvine, CA. The project is anticipated to have 2 main access points from Mesa Dr. and limited access from Fine Arts street. Consideration shall be taken for street traffic and students coming in and out of classes and dorms.

UCI administrators conveyed to us their concern for the noise impact that this project could cause to the Mesa Court Housing because of its proximity to the project.

The University has requested your proposed solution to the noise concern. Keep in mind that noise abatement including work schedule restrictions for “hard construction” (starting at 8 a.m.) are already part of the owner’s requirements. Propose other solutions to the noise problem.

Part D: Man Hoist Access

It has been decided that the best location to install the main hoist at each building is by the Great Room. Placing the man hoist by the great room will allow you to install most of the skin systems and buy you more time before having to take it down.

By installing the man hoist at those locations you are faced with the challenge of not reaching levels 3 and 5 with the man hoist.

Propose a solution to access Levels 3 and 5 without moving the location of the man hoist.

Demolition Site Utilization Plan Deliverable:
Submit (1) hard copy and (2) two electronic copies of your Demolition Site Utilization Plan.

Structure Site Utilization Plan Deliverable:
Submit (1) hard copy and (2) two electronic copies of your Structure Site Utilization Plan.

Noise Mitigation Deliverable:
Submit (1) hard copy and (2) two electronic copies of your noise mitigation solution narrative.

Man Hoist Deliverable:
Submit (1) hard copy and (2) two electronic copies of your man hoist solution narrative.

Remember to incorporate and defend your Site utilization plan during your presentation.

11. Technical Proposal Approach

Written by Wade Chance and Ryan Piper

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 to determine the lowest "cost per point"; 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, general summary, project schedule, quality control plan, site utilization / coordination with operating facilities and students, staffing, safety, sustainable design and enhancements. 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 as well as include any other information necessary to convey to the University why the proposer should be selected for this project.

1. 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 statement will refer 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, sustainable design, etc.

   Technical Proposal Deliverable
   Utilize letterhead template X.11.1.1 in Section X to write an Executive Summary which is not more than 1 page in length. The summary should be written to the University and should be a message statement from Hensel Phelps to UCI to accompany the Technical Proposal.

2. In addition to the Executive summary statement, evaluate the project enhancements list in template X.11.2.1 in Section X and identify five of the enhancements in which your team feels will be most beneficial to the Owner. With each of the five enhancements, summarize, in a few sentences or bullets, why your team feels it will be beneficial and how you will emphasize this to the Owner to win this project.

   Enhancement Summary Deliverable
   Utilize template X.11.2.1 in Section X to write identify the top five project enhancements offered by your team and evaluate what makes them so valuable. Provide several bullets on the attached template as an outline for how will you emphasize them in the interview with the Owner.

12. TEAM MEMBERS RESUMES

Provide each team members personal resume (**not** a resume tailored to this problem). Include mailing address, telephone and email contact information. Photos are encouraged but not required.

VII. COMPETITION SCORING SYSTEM

Item	Description	POINTS
0.1	Early Deliverable - Biographies	0 (note 1)
0.2	Quality of Submitted Proposal	2
0.3	Timeliness of Proposal	0 (note 2)
1.	General Summary	4
2.	Estimate	22
3.	General Conditions	10
4.	Proposal Summary	14
5.	Schedule	26
6.	Coordination of Work	12
7.	Design Management	6
8.	Personnel Issues	4
9.	Safety	4
10.	Site Utilization	12
11.	Technical Proposal Approach	4
Subtotal		120
Oral Presentation		80
GRAND TOTAL		200 POINTS

Note 1: No points shall be issued in the competition for content of this previously due item; however points may be deducted from the team's score for having failed to comply with this item in a timely and professional manner.

Note 2: **½ point** will be deducted from the total score for **every minute** past the deadline time. Judges reserve the right to "cap" the penalty amount at their discretion; however no team with a penalty cap will be allowed to place in the competition awards.

As the team placement results often are separated by mere fractions of a point, it is recommended that your team take each point seriously. No points scoring information will be provided to the teams at the conclusion of the competition, but feedback will be provided for each component in an "above-average / average / below-average" format.

VIII. LIST OF JUDGES

Oral Presentation Judges:

Rod Hammett, Project Manager
(949) 852-0111
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Ryan Piper, Project Manager
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Administrator / Executive Judge:

Eun Kim, Project Manager
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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). As per ASC rules, no "runners" are allowed for food delivery, copying, etc. beyond the six team members. **Faculty advisor(s) may not interface with their team once the competition has begun.**

Rule No. 2 One (1) Hard Copy and two (2) electronic copies of the proposal must be turned into the judges**. No proposals will be formally returned.** 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.

Rule No. 3 The number of computers and printers per team is to be as outlined in the Competition Rules as published by the ASC. Use of the Internet is allowable and may be necessary for certain components of the problem; Hensel Phelps will pay for each team to have one (1) internet connection through the hotel for the Thursday written component preparation duration – details as to how this will be provided will be announced at the opening conference. An LCD projector and a computer will be supplied by Hensel Phelps for the teams to use during the oral presentations. 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 or inquire as to its availability on the provided computer.

Rule No. 4 Attendance at other team's oral presentations is subject to the rules of the ASC, 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, faculty members and relatives / friends 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 specific 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 extent of the student's project or problem knowledge. Alternates may be considered should there be an identified conflict. The judges will have the final decision. Failure to notify the problem sponsor makes the team subject to disqualification.

Rule No. 6 While the judges will endeavor to administer the problem with all fairness and appreciation for the team's perspectives, the decisions of the judges shall be final when deciding conflicts and scoring.

Rule No. 7 A one-half (½) point deduction will be taken for each minute the proposal is turned in past the time it is due. Written proposals are due Friday at 12:00AM (Midnight Thursday night). Location of proposal delivery will be announced at

opening conference. Other deliverable items, if applicable, will be due as specified elsewhere herein.

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 Oral interviews will begin at 7:00 AM on Friday. Presentation materials for all teams are to be turned in to the judges by 6:45 AM. 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. Teams are encouraged to bring electronic presentation materials on a CD or thumb drive for use on the HPCC provided presentation computer; this will save on set-up time. HPCC's computer will utilize Microsoft Office 2007 software; if specialized software is necessary then the team must provide a computer to run their presentation and this computer must be delivered prior to the 6:45 AM deadline.

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. Similarly, no components of the problem may be sent to others outside the team for assistance in completing the problem. Any violations of the above are subject to point penalties or team disqualification, at the Judge's discretion.

Rule No. 11 Due to the sensitive nature of disclosing project information that the Owner and / or design professionals may not wish to be publicly distributed, Hensel Phelps reserves the right to require Confidentially Agreements be signed by each team member prior to distribution of the Problem Statement. This may further require that all or some Contract Documents or other material provided to the team, both electronically and hard copy, be returned to Hensel Phelps at the conclusion of the competition.

Rule No. 12 The premise of the proposal and oral interview is that you are presenting to the upper management of your own company. It is preferred that your team take the identity of Hensel Phelps, but other team / company names are acceptable. You are therefore asked to not include extra peripheral information about your company such as safety plans, company profiles or other marketing materials. Our intent is to test you on your knowledge of construction concepts, means and methods, not your ability to make up or compile marketing materials and canned programs. Please limit your responses generally to the information requested, although innovation and enhancement is encouraged.

Any team observed violating these rules may be asked to withdraw from the competition or be assessed point penalties.

X. SUPPLEMENTAL INFORMATION

Note: Documents are provided in electronic format only on thumb drive:

00 Graphics
01 Contract Drawings
0.3 Request for Information Form
0.4 Competition Evaluation Form
1.1 General Summary Spreadsheet
2.1 Concrete Estimate
2.2 Local Ready Mix Concrete Pricing
2.3 Historical Cost Data Sheet
2.4 Pumping Charts and Pricing
2.5 Pour Sequences
3.1 General Conditions Cost Matrix
3.2 Staffing Matrix Spreadsheet
3.3 Company Historical General Conditions Rates
3.4 Staff Position Duties
3.5 COR for Furniture Planning
3.6 UCI General Conditions
4.1 Bid Tab Template
4.2 Subcontractors Proposals
5.1 Short Interval Production Schedule
6.1.1 Site Utility Drawings
6.1.2 Site Utility Coordination Plan
6.2.1 Food Service Equipment Rough-In Template
6.2.2 Food Service Equipment
7.1 RLC Elevator Concept Sketches
9.1 Safety AHA
9.2 Safety Toolbox Talk
10.1 Crane Types, Sizes, Rates
10.2 GFRC Panel Shop Drawings
11.1.1 Technical Proposal Executive Summary
11.2.1 Technical Proposal Enhancement Template