

**REGION 6**  
ROCKY MOUNTAIN REGION  
AK, AZ, CO, ID, MT, NV, NM, UT, WY



**REGION 7**  
FAR WEST REGION  
CA, HI, OR, WA

## **Region VII- Commercial Building Division** **February 8-11, 2017**

# **Problem Statement** **ANSWER PACKET**



## **Medical Office Building**

**Emeryville, CA**

**Problem Sponsor:**



**HENSEL PHELPS**  
Plan. Build. Manage.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

**TABLE OF CONTENTS**

I.	Commercial Division Time Table.....	page 3
II.	Preface.....	page 4
III.	Problem Scenario.....	page 5
IV.	Project Information.....	page 6
V.	Problem Outline.....	page 8
VI.	Submission Requirements.....	page 9
VII.	Scoring.....	page 39
VIII.	List of Judges.....	page 40
IX.	The Rules.....	page 41
X.	Supplemental Information.....	page 43

**PROBLEM SPONSOR**



**HENSEL PHELPS**  
Plan. Build. Manage.

**Northern California District**

226 Airport Parkway, Suite 150  
San Jose, CA 95110  
(408) 452-1800

**Southern California District**

18850 Von Karman Avenue, Suite 100  
Irvine, CA 92612  
(949) 852-0111

**Southwest District**

8326 Cross Park Drive  
Austin, TX 78754  
(512) 834-9848

**Southeast District**

6557 Hazeltine National Drive, Suite 1  
Orlando, FL 32822  
(407) 856-2400

**Plains District / Corporate Offices**

420 Sixth Avenue  
Greeley, CO 80632  
(970) 352-6565

**Mid Atlantic District**

4437 Brookfield Corporate Drive, Suite 207  
Chantilly, VA 20151  
(703) 828-3200

**Western District**

4129 East Van Buren, Suite 100  
Phoenix, Arizona 85008  
(480) 383-8480

**Pacific District**

841 Bishop Street, Suite 2001  
Honolulu, HI 96813  
(808) 535-9500

**[www.henselphelps.com](http://www.henselphelps.com)**



**HENSEL PHELPS**  
Plan. Build. Manage.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

**I. COMMERCIAL DIVISION TIME TABLE**

**THURSDAY, FEBRUARY 9<sup>TH</sup>**

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 10<sup>TH</sup>**

Proposals Due .....	12:00 AM (Midnight)
Interview Materials Due (all teams) .....	6:45 AM
Interviews Start .....	7:00 AM
Project Debriefing.....	7:15 PM

**SATURDAY, FEBRUARY 11<sup>TH</sup>**

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



**BUILT FOR Healthcare**

**Associated Schools of Construction Competition**  
**Region VII – Commercial Building Division**  
**February 8-11, 2017**

## **II. PREFACE**

WELCOME to the 2017 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!

**Associated Schools of Construction Competition**  
**Region VII – Commercial Building Division**  
**February 8-11, 2017**

### **III. PROBLEM SCENARIO (Jeff Wellenstein)**

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

Our company has a strong history of provided healthcare facilities in the United States to some of the top healthcare providers. Recently, our firm was selected as the design-builder of choice to bring premium healthcare to the people of Emeryville and deliver a state of the art medical office building in the downtown area. We competed with several firms for this opportunity and were selected as the design builder through a best value selection process.

The surrounding neighborhood is “up and coming” with a growing Bay Area business economy which is attracting residents to Emeryville. Sensing this growth, the Owner has recognized the need for a local facility that provides a wide variety of healthcare services. They have elected to develop a Medical Office Building (MOB) that provides as many services as possible, while remaining an outpatient facility to avoid the classification of a traditional hospital which will expedite the delivery to market by limiting the involvement of OSHPD. For this reason, the Owner has procured an existing building and opted to upgrade the completed structure to facilitate the interior buildout for a medical program. This project is not typical of our company’s recent projects, but has been strategically targeted as an avenue to begin business with a new client. This project will serve as an “interview” with a potential for future work. This will place great pressure on the project team to impress the client and deliver a successful project “the Hensel Phelps Way” in hopes to add them to the long list of our company’s repeat clients.

Our firm has taken particular interest in this project and considers it a privilege to work for the new client. We are hopeful it will develop into a long and prosperous partnership. You are less than a third of the way through the project and are due for your Third Point Review with your firm’s Upper Management. The purpose of the Third Point Review is to provide a thorough analysis of the project status including budget, schedule and associated project risks to ensure the project is on track.

You must submit documentation to them by midnight tonight, and you will be asked to present your findings in a “Third Point” meeting with Upper Management tomorrow. Interim progress meetings are scheduled for 10:00 AM and 2:00 PM today (Thursday, February 9<sup>th</sup>).

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. 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 Third Point Review 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, Construction Planning, Quality and Safety. Creativity and innovation are encouraged, shallow marketing pitches are not.



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

#### **IV. PROJECT INFORMATION (Jeff Wellenstein/Adam Books)**

This Healthcare Owner is expanding its presence in the San Francisco Bay Area and has leased an existing building in Emeryville, California. The Emeryville location is ideally suited to support an integrated model for all of their practices. The building is currently in core and shell condition with an operational restaurant located on the ground floor. The gross leasable space is 98,560 SF, with 76,500 usable SF. The location is very accessible as it is close to I80 and I580 freeways, the Capital Corridor Amtrak station as well as multiple bicycle and pedestrian corridors. There is first floor and below grade parking within the building, as well as parking available in adjacent complexes.



The programming for the project was performed by a consulting firm and included in the RFP used to procure the project. The medical office building includes three operating rooms, two minor procedures rooms (for endoscopy and minor procedures), one MRI, one CT, blood draw with a small laboratory, nuclear medicine, non-retail pharmacy, mammography, minor imaging (flat plate X-Ray) and clinical exam areas for primary and specialty care including ENT, Gastroenterology, urology, vascular, neurology, pulmonology and pre-anesthesia clinics. The ambulatory surgery area will be OSHPD 2.1, and the remaining areas will be OSHPD 3. A preliminary medical equipment list, including equipment make and model, was also included with the RFP.

The Space Program included within the RFP documents was used by the Design Build team to develop the schematic design for approval prior to proceeding to the design development stage. All required spaces are represented in the program; and the Owner has made it clear that if the design allows for additional program, an additional operating room and / or exam rooms is desired. A Functional Space Planning Report was included as background information and preferred floor adjacencies.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

This Owner has utilized the Design-Build delivery method for this project for the following reasons:

- Desire to have a single point of responsibility
- Earlier guarantee for final project cost and schedule
- Benefit from value engineering and innovation
- Stronger integration of design and construction practices
- Enhanced constructability with constructor being involved in the design process
- Earlier occupancy as compared to traditional design-bid-build

As the Design-Builder, you are expected to work cooperatively with the Owner and provide, among other services, schedule development, estimate development, schematic design, design development, Guaranteed Maximum Price (GMP), subcontractor prequalification and bidding, construction documents, constructability review, all required permits, value engineering, and preconstruction planning throughout the preconstruction stages.

Schematic design and design development documents have been approved, and the 100% Construction Documents are submitted for approval and permit. Approval of construction documents and issuance of applicable building permits will trigger construction commencement.

Hensel Phelps will hold all subcontracts and shall be fully responsible for construction services including the means and methods of construction, construction execution, progress schedule, weekly progress meetings, coordinate testing and inspections, project safety, project completion within the schedule agreed upon in the preconstruction phase, and compliance with all applicable laws and regulations. Mechanical, Electrical, Plumbing, Fire Protection and any other key trade partners may employ design engineers of record who will be responsible for licensing requirements.

It's early February 2017, and the design team has been working feverishly to meet design package deadlines since the Notice to Proceed for Construction was issued on December 16, 2016. The 100% Design Development document submittal has been approved along with a schedule including Substantial Completion / Temporary Certificate of Occupancy milestone in mid-December 2017 and Final Completion / Certification of Occupancy on February 9, 2018. The substantial completion date is an important milestone which will allow the Owner to begin a lengthy licensing requirement. The Final Design Package for the 100% Construction Documents was recently submitted for city plan check and permit and the current task at hand is to obtain bids for the remaining scopes of work, develop final budgets and submit a Guaranteed Maximum Price (GMP) for approval. It is imperative to the project to compile the GMP and buyout remaining trade partners to meet the very aggressive schedule. The GMP is to be submitted within the month.

In addition to all the above work and craziness ... Upper Management has requested a Third Point Review of the project to make sure everything is on track. They would like to review the schedule, estimate for drywall/framing, bids for remaining trades to buyout, financial status report (FSR), and the general conditions estimate to complete the project. Your architectural team has hinted at a possible OSHPD permitting issue with the location of the locker/changing rooms adjacent to the operating rooms; however, the client prefers the current layout and requests we continue with the permitting process. The team is completely focused on preparing the final touches on the Third Point Review to support the anticipated GMP agreement in a couple weeks!

**Associated Schools of Construction Competition**  
**Region VII – Commercial Building Division**  
**February 8-11, 2017**

## **V. PROBLEM OUTLINE**

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

1. FINANCIAL STATUS REPORT .....	10
2. ESTIMATE .....	12
3. GENERAL CONDITIONS .....	14
4. PROPOSAL SUMMARY (TAB ANALYSIS).....	16
5. SCHEDULE .....	18
6. COORDINATION OF WORK .....	26
7. CHANGE MANAGEMENT .....	29
8. PERSONNEL ISSUES .....	30
9. SAFETY .....	32
10. SITE UTILIZATION .....	34
11. QUALITY CONTROL .....	37
12. TEAM MEMBERS RESUMES .....	38



## **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.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **1. FINANCIAL STATUS REPORT**

Written by Jay Larson

After the award of any project, the timely issuance of bid packages and contracting of all scopes of work is of highest importance. This is somewhat compounded with a Design-Build contract in the fact that the project is not 100% percent designed at the time of proposal. As the Project Manager, you are responsible to initiate and oversee the purchasing process and make sure the budget is sufficient to cover the entire project. Hensel Phelps uses a Financial Status Report (FSR) to consolidate all project costs, track the purchasing of the project and project the final profitability overall. This will be a primary focus of the FSR and is your chance to demonstrate to Upper Management that you have a firm grasp on the financial health of the project.

### **Part A: Financial Status Report**

Use the FSR spreadsheet included in Section X.1.1 to fill out your analysis for each purchased package or revised budget on the project. These will be the actual dollar amounts you will purchase each subcontracted scope of work and will provide the Final GMP amount for submission to the Owner as compared to the budget developed upon completion of the Design Development documents. Use the values given in Section X.1.1 along with the final amounts you come up with in Section 3 (Estimate), Section 4 (General Conditions), and Section 5 (Tab Analysis) to complete the FSR. This will represent the entire project financially.

### **Part B: Insurance Coverage**

Once all the contract scopes have been purchased you will need to ensure proper insurance coverage for the project. As part of the overall budget, it is your responsibility to confirm proper coverage for the duration of the project, and report these numbers in the FSR. You will need to determine the Builders Risk and General Liability policies as follows:

- **Builder's Risk** – Builder's Risk Insurance is provided by the Owner on the project. However, when Hensel Phelps does not provide the coverage, it is customary for our Insurance Broker to review the Owner's coverage and provide recommendations to the project team. Section X.1.2.1 is the coverage provided by the Owner. Section X.1.2.2 is a recommendation and quote from Zurich on their recommended coverage. Zurich and Hensel Phelps have established a trusted relationship for over 20 years. You will need to evaluate the difference in coverage and the associated premium for additional coverage. After review, determine if you will include the costs for the additional coverage or stick to the coverage required by the Owner.
- **Payment & Performance / General Liability** - Section X.1.3 is an initial quote from Flood and Peterson for the Payment & Performance Bonds and General Liability Insurance for the project. Based on the quote, you will need to evaluate the coverage and fill in the budget for P&P Bonds and GL Insurance needed.

### **Part C: Risk Analysis**

With a GMP contract, you will need to include a reasonable amount of contingency and fee for the project. Contingency is the amount of money that will be left in reserves for design development issues, scope gaps not completely purchased, or other issues that may arise during construction. Fee is the amount that Hensel Phelps charges for services rendered.

The contingency for this project is broken out in three parts: Design, Buyout, and Construction. The design contingency has already been set at 3% percent. As part of the risk analysis you will need to perform the following:

- Determine the total percentage of contingency that you will carry for Buyout and Construction. These percentages will need to be reported to the FSR.
- Determine the total percentage of fee that you will be charging the owner for this project. This percentage will need to be reported to the FSR.
- In preparation for the Third Point Review with Upper Management, you will need to review any potential risks there might be based on the project scope and your buyout process. Upper management will be looking to see how well the project has been purchased and evaluate any

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

potential gains or risks. Write a short narrative (200 words max) that outlines and explains the following:

- a. Potential risk items that you foresee that will be covered by contingency. These items will also serve as justification to the Owner for the proposed contingency percent.
- b. An explanation of the amount of fee carried, and your justification for that percentage.
- c. A brief description of what you see, if any, items the buyout savings may be used for, and if this should reduce the amount of contingency you carry.
- d. Explain your reason why you chose to carry or not carry the difference in coverage in the Builder's Risk Insurance policy.
- e. Any other scopes or services not listed on the FSR that you saw needed to be included and the reason for them.

**Financial Status Report Deliverables:**

1. Submit (1) one hard copy and one (2) electronic copies in native format (Excel) of your FSR, with all scope costs filled out, and the insurance assessment completed.
2. Submit (1) one hard copy and one (2) electronic copies of your written Risk Analysis.

**Answer:**

**Reference answer FSR in Section X.1.a and Risk Analysis Narrative below.**

**Contingency**

**Contingency was allocated at 3% for Buyout and 3% for Construction. This is based on design approval being given through schematic drawings, approval for 100% Construction Documents (CD's) and all permits and building fees still pending. As stated in the narrative, the design team is "working feverishly" to complete package deadlines and the owner has already stated he would like to allow for additional OR and Exam rooms. Both have the potential to delay the release of the final design packages and further delay the completion of CD's. Because the design packages are not complete, scopes of work are yet to be purchased as indicated by a N under the Buyout Complete column in the FSR. A 3% contingency for both buyout and construction should be sufficient to cover the remaining risks and provide the requested project for the Final GMP listed in the FSR.**

**Fee**

**Fee is subjective and typically ranges from 4% - 7% based on current market conditions. We used a fee of 5% as we were trying to keep our costs down due to the fact we really want to be awarded this job to establish a relationship with the client, but also want to remain profitable and in alignment with company goals.**

**Buyout Savings**

**The buyout savings will be used as additional Hensel Phelps contingency to solve issues that arise in the field, help expedite materials if needed, and to cover the laser scanning.**

**Difference in Coverage**

**The owner's coverage leaves the Design Builder & Subcontractors at risk to cover the first \$5k of any incident. Seeing as Hensel Phelps is the Design Builder, the owner's policy does not completely cover us and potentially leaves our subcontractors at risk as well. Even though it is additional money, we will want to take the DIC policy, and a line item should have been included in the FSR along with the premium quoted by Flood and Peterson.**

**Additional Items**

**The laser scan quote found with the return of the RFI's is to be included as a line item in the FSR. Even though this cost shows as a loss in the buyout column it is something that will benefit the project seeing that we are building out an existing structure. This will help show structural members, utility lines and current locations, as well as help identify any potential items that were not visible during the pre-job walk. This is a cost that would be covered with the overall buyout savings and something Hensel Phelps would want to pursue.**

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **2. ESTIMATE**

Written by Stephanie Carter and Tedd Mason

### **PART A: Drywall Estimate**

The A/E team submitted the 100% Construction Document (CD) set of drawings a few weeks ago and the Owner is now requesting our Guaranteed Maximum Pricing (GMP) proposal. Due to several last minute Owner requested wall layout changes that occurred on Levels 1 through 4 of the MOB between the 100% Design Development set and the 100% Construction Document set, your Project Manager is particularly concerned with the budget for the drywall and framing scope of work. This work was included in Bid Package #2 and has been contracted with drawings which do not incorporate these late Owner changes. Unfortunately, the subcontractor cannot review these changes and provide an updated cost in time for our GMP submission. Instead of simply plugging in the Drywall & Framing contract amount into the GMP, your Project Manager has asked you to perform a thorough review of the drywall and framing scope of work as shown in the final 100% CD set. He will use your estimate to finalize the Drywall & Framing scope budget for the GMP and to negotiate the scope changes with the subcontractor.

Your Project Manager has provided you with Hensel Phelps' subcontractor unit cost rate sheet in Section X.2.1 in order to accurately estimate this work.

Use the provided Contract Drawings titled 'Estimate Drawings' (Section X.2.2) to quantify and estimate ONLY the following drywall and framing components:

- Framing & Gypsum Board for Partitions
- Framing & Gypsum Board for Ceilings

The supplemental information in Section X contains:

- Hensel Phelps Subcontractor Unit Cost Rate sheet (Section X.2.1) - Resource to be used for labor, material, and equipment unit costs
- Estimate Drawings (Section X.2.2) – These are the drawings to be utilized in completion of the drywall and framing estimate.
- Drywall Estimate Spreadsheet (Section X.2.3) - This spreadsheet has been formulated for your use in compiling data in the same format as the other teams. You are to complete the drywall estimate spreadsheet by filling in the appropriate wall types, quantities and unit costs needed to calculate the total cost.

Clarifications and Exclusions:

- It is customary to ignore door and window areas while completing a quantity takeoff for framing and drywall. Therefore, do not remove door and window areas from total wall areas.
- If there are any sloping walls, use an average wall height in the quantity takeoff.
- Assume floor to floor heights between each level is 14'-6".
- Walls with the code FP = Full/Partial should be treated like full height walls.
- Walls with the code PC = Partial/Ceiling should be treated like full height walls.
- All dimensions are to be measured from inside face of wall to inside face of wall.
- .2 Wall types should be treated as 2.02FH
- Round all lengths to the next whole foot. Ex. 8'-6" would be 9'; 8'-5" would be 8'-0".
- Do NOT include additional material or labor to account for overhead bracing for non-full height walls.
- The cost of backing and the construction of soffits is accounted for in the wall unit costs on attachment X.2.1.
- In order to keep all teams' estimates consistent, do NOT modify the Estimate Spreadsheet.

**Estimate Deliverables:**

1. Submit (1) one hard copy and one (1) electronic copy in native format (Excel) of your completed drywall estimate spreadsheet including any additional assumptions made to complete this estimate.

**Answer: Reference Drywall Estimate Section X.2.3.a which includes assumptions.**

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

**PART B: Unforeseen Construction Change**

*(Time Warp to later in the project during Drywall Activities)*

Time warp and you are now the Project Engineer (PE) on the project. Drywall activities are approximately 80% complete; all walls on floors 2 through 4 are complete through the tape and mud process. The 1st floor isn't far behind and will be receiving final screw inspections shortly. Due to a recent change in construction code, the Fire and Life Safety Officer (FLSO) is requiring that all rooms adjacent to a restroom are to be 1 hour rated. As the PE on the job in charge of managing cost, your Project Manager (PM) has asked you to review the drawings and determine the locations and potential cost impact of this unforeseen change.

Based on the information you provide, a Change Order Request (COR) will be submitted to the Owner and your drawings will serve as the back-up to justify the additional cost incurred by this change.

Using the Existing Fire Life Safety Partition drawings provided, compile the following information:

- Prepare a formal cost estimate of the walls affected.
- Show the cost differential between the original non-rated wall type 0.0XXX and the new 1 hour rated wall type 1.0XXX.
- Highlight the drawings to show the walls affected by this change
- Prepare a brief time impact analysis narrative using 500 words or less.

The supplemental information in Section X.2 contains:

- Existing Fire Life Safety Partition Drawings (X.2.4) – These drawings show which existing walls to remain already have a fire rating.
- Wall Type Estimate Template (X.2.5) - This spreadsheet has been formulated for your use in compiling data in the same format as the other teams. You are to fill in linear footages, heights of walls, square footages, and unit costs used in this spreadsheet.
- Hensel Phelps Subcontractor Unit Cost (X.2.1) – This is a resource to be used to calculate the total cost impact of this change.

Clarifications and Exclusions:

- Full height (FH) walls are to be assumed to be 14'-6"
- All dimensions are to be measured from inside face of wall to inside face of wall.
- It is customary to ignore door and window areas while completing a quantity takeoff for framing and drywall. Therefore, do not remove door and window areas from total wall areas.
- If there are two different wall types on either side of a door opening, assume the more expensive wall type when preparing the price estimate.
- Round all lengths to the nearest whole foot, sim. to Part A.
- For acoustical wall types without a 1-hour equivalent assume that the unit cost is 95 cents higher than the non-rated wall.
- In order to keep all teams' estimates consistent, do NOT modify the Estimate Spreadsheet.

**Unforeseen Construction Change Deliverables:**

2. Submit (1) one hard copy and one (1) electronic copy in native format (Excel) of your estimate.
3. Submit (1) one hard copy and one (1) electronic copy of the take-off drawings that will be used as back-up.
4. Submit (1) one hard copy and one (1) electronic copy of the time impact analysis.

***Answer: Reference Estimate Section X.2.5.a and Time Impact Analysis Narrative Section X.2.6.a.***



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

### **3. GENERAL CONDITIONS**

Written by Mike Gianfelice

General Conditions are real construction costs that are not immediately quantifiable by the untrained eye as the costs are associated with on-site management, supervision, and contract administration. General Conditions (GCs) are the costs incurred during a construction project that typically are not manifested and seen as work in place, but they are integral to the success and flow of the job. GC's are a critical component to risk and cost management and afford the contractor the ability to forecast costs, staffing, and project needs.

At the outset of the job, a GC Estimate is required to forecast the associated project costs. You have been tasked with creating this estimate through final completion.

Please Note:

- General Conditions include all the operating costs and expenses for your on-site salaried supervision.
- Project Executives are to be carried by district overhead and not included in GCs.
- Home-office overhead is not included in GCs. However, satellite project office and relocation costs will be billed to the project.
- Supervisory staff positions should be allocated to the project as the team sees fit to complete the change order work and base scope of work closeout.
- All General Conditions associated with direct work such as subcontracts and specific costs of work are carried within the specific scope budget; therefore, those costs are not to be included in the overall General Conditions breakdown.
- The project will be assigned two interns over the summer. All costs associated with the moving and housing of interns are provided by the jobsite.
- Reference Schedule Section X.5 for Notice to Proceed and Substantial Completion information.
- Assume Material Sales Tax of 9.6%
- Permit Fees are carried by the Owner
- Contractor's Fee is not carried within the General Conditions, see Financial Status Report in Section X.1.
- Bonding and Insurance Fees are not carried within the General Conditions, see Financial Status Report in Section X.1.

#### **Part A: Staffing Plan & General Conditions – Base Contract**

Prepare a Staffing Plan and a detailed General Conditions estimate projecting all costs from Notice of Award/Preconstruction NTP through Final Completion. Create this Staffing Plan using the matrix found in Section X.3.2. Each staff member's total dedicated duration on the project should be included on the form to accurately project staffing costs as these durations are pulled to the GC estimate.

Use the General Conditions Template provided in Section X.3.3 and the historic company rates found in Section X.3.1 to calculate the overall value for the GCs. As you determine the costs and units for each GC 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 breakdowns.

#### **Part A Base Contract General Conditions Deliverables:**

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

1. Submit (1) one hard copy and (2) electronic copies in native format (Excel) of your Staffing Matrix
2. Submit (1) one hard copy and (2) electronic copies in native format (Excel) of your overall General Conditions Cost Matrix

**Part B: Staffing Plan & General Conditions – Change Order**

*(Time Warp to Completion of all Drywall Activities)*

Several months before substantial completion, the Owner has decided to move forward with a substantial change order totaling 10% of the contract value. It is important to note that the change order will not affect the GMP or schedule for the base scope work, and that the change order will be treated like a separate project. The Notice to Proceed for the change order work has come just as all drywall activities are finishing. This change order holds provisions for another project phase which includes the buildout of another space just down the street for additional Exam Rooms. Per the Owner, they would like to have this new space completed in 9 months. The work will be handled under a new permit with the City of Emeryville. Although the base scope of work and the new change order work will overlap and many activities will be performed concurrently, there are no foreseen schedule impacts to the base scope of work and original permit.

Understanding that the change order work has an immediate start, you have been asked to help put together the GC estimate for the change order work. These projections must take into account what you determine will be the supervision and management costs for completing the change order scope within the associated 9-month schedule. The change order to the contract will require you to determine the supervision staffing needs for the additional work.

Prepare a Staffing Plan and a detailed General Conditions estimate projecting all costs associated with this change order. Create a Staffing Plan using the matrix found in Section X.3.2 and the General Conditions Template provided in Section X.3.3. The Owner is expecting that this change order requires minimal GCs and dedicated staff members. However, knowing the magnitude of the change, additional staff will be required to complete the change order scope of work. Therefore, it will be essential for you to find efficiencies between the resources required for the change order and the current staff.

Prepare a narrative indicating your staffing plan required for execution of the change order work while performing project closeout operations. Describe where you have identified efficiencies and provide justification for your additional staff.

**Part B Change Order General Conditions Deliverables:**

3. Submit (1) one hard copy and (2) electronic copies in native format (Excel) of your Staffing Matrix.
4. Submit (1) one hard copy and (2) electronic copies in native format (Excel) of your overall General Conditions Cost Matrix.
5. Submit (1) one hard copy and (2) electronic copies of staffing narrative as described above.

*\*NOTE: Part B deliverables should be independent and should not be used as part of the overall FSR analysis*

***Answer: See Staffing Matrix for the Base Scope of Work Section X.3.1.a, General Conditions Estimate for the Base Scope X.3.2.a, Staffing Matrix for the Change Order Section X.3.3.a, General Conditions Estimate in Section X.3.4.a and Staffing Narrative Justification in Section X.3.5.a.***

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

#### **4. PROPOSAL SUMMARY (TAB ANALYSIS)**

Written by Amanda Detemple & Eric Freedman

You are preparing to take bids for most of the remaining scopes to purchase as you approach submitting the GMP. At its core, the fundamental recipe for a successful project is one that delivers the highest quality product while mitigating risks in the most cost effective and efficient ways possible. Just as a schedule and estimate provide the backbone for any project, the bid proposal phase can dictate success or failure throughout the life of a project.

Proposal Summaries, or 'Bid Tabs,' are used to compare subcontractors in an easy to read format. At this stage, it's important to distinguish between those who have included too much scope (too much money) and those who have included too little scope (not enough money). In addition, your subcontractors should meet the prime contract requirements set forth in your specifications.

In order to submit the GMP, you will be responsible for reviewing and preparing bid tabs for the following scopes of work:

1. Metal Support Assemblies
2. RF/Lead Shielding
3. Acoustical Ceilings
4. Building Specialties

As you are comparing Bid Tabs, keep the following contract requirements in mind:

- Company policy requires bonds on all subcontractors with subcontract values over \$50,000
- The specifications do not require LEED certification for this project, however the design will need to comply with LEED Silver Standards.
- Union vs. Non-Union wages as they relate to specific trades
- Pre-construction services and construction costs
- Schedule Commitments

Each Bid Tab has line items for checking off key qualifications. You may choose to modify each template by adding or changing line items as you see fit. The "Scope Desired" (first) column contains the budget from the original estimate completed at the time of procurement. This is not a hardline number – your numbers will likely not add up to this total; however, you should avoid going too far over your budget (equally, going too far under your budget should raise red flags). Carefully select your subcontracts based on an overall value added 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: "Blue 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. It will be necessary to use blue numbers to complete estimates and reach your final numbers.

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

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

You will be allowed to briefly interview 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 of that 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.

**Reminder:** Use the bid amounts selected to complete the FSR in Section 1 of this problem statement.

**Proposal Summary Deliverables:**

1. Submit (1) hard copy and (2) electronic copies in (Excel or pdf) of each proposal summary for Part A with selected subcontractors clearly identified.
2. Submit (1) hard copy and (2) electronic copies with a brief narrative for each of the (4) scopes (500 or less words in total) explaining why the subcontractor for each scope was chosen.

**ANSWER:**

**See Proposal Summary sheets Section X.4.1.a. The following have been selected based off their bids summaries:**

***Acoustical Ceilings – Ad-In***

***Building Specialties – Nothing so Special Here***

***Metal Support Assemblies – Trust the Strut***

***RF/Lead Shielding – RF, LLC***

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **5. SCHEDULE**

Written by Aaron Hale

*(Time Warp to the Awarding of the Emeryville MOB)*

You have just received the great news that we have been awarded the Emeryville MOB. Although excitement is in the air and everyone is celebrating, as the Scheduler, you know a lot of work is ahead of you. The preliminary schedule that was submitted with the original proposal package to the Owner was very conceptual, and you will need to build in the much needed detail. This will not only include detail for the construction activities, but the preconstruction activities as well.

Along with the award, the Owner has decided to issue us the Notice to Proceed for Pre-Construction. There has been talk around the office from Upper Management that we will have roughly seven to eight months to work solely on the design before we receive the Notice to Proceed for Construction. You've been in this position before and you know Upper Management will soon be asking for the project schedule to help kick off the design efforts and pre-planning work.

The project schedule is a fundamental tool utilized to properly plan and manage any project. A well-developed schedule will communicate and direct all parties along the path to completion and success. As part of the Third Point Review with Upper Management, you will be required to present a complete, workable Critical Path Method (CPM) Schedule. The CPM will effectively outline your plan of attack for the project.

This schedule shall be comprised of the following:

General CPM Schedule Criteria:

a. Presentation Criteria:

i. Column Format:

a. At a minimum show the following columns to the left of the timescale (Gantt Chart): Activity ID, Activity Description, Original Duration, Early Start, Early Finish, and Total Float (see Figure "A" example below):

Figure A:

Activity ID	Activity Description	Orig. Duration	Early Start	Early Finish	Total Float
<b>2017 ASC Reno Competition - Emeryville MOB</b>		0			0
<b>MILESTONES</b>		0			0
<b>PRECONSTRUCTION</b>		0			0
<b>CONSTRUCTION</b>		0			0

- ii. Activity count: No less than 300 and no more than 500 activities.
- iii. There should be a continuous logic flow of critical path activities from the Notice to Proceed through to Final Project Completion.
- iv. Organize your activities so they are easy to read, grouped intuitively and follow proper sequence to present a nice schedule "flow."

b. Work Breakdown Structure (WBS):

In order to maintain flow and composition, schedules are typically organized by a WBS. The WBS is the outline of a schedule, and acts as an umbrella to capture the theme or specific nature of an activity set. A WBS can contain multiple layers



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

and subsets to aid in the organization of the activities, or it can be simply based on the structure and complexity of the schedule.

Assume that your Project Superintendent has created the base WBS for you to follow as a guideline. You will need to elaborate within the base WBS as much as required for the schedule to reflect the activity tasks you create and to convey specific scopes of work. This could mean area delineation, scope break out, etc. But remember, you must keep the base WBS true to what has been provided by your Project Superintendent (see Figure “B” example below):

Figure B:

<b>2017 ASC Reno Competition - Emeryville MOB</b>	
<b>MILESTONES</b>	
<b>PRECONSTRUCTION</b>	
<i>Design Development &amp; Permitting</i>	
<i>Bid Packages &amp; Scope Buyout</i>	
<i>Submittal Preparation, Review &amp; Approval</i>	
<i>Material Procurement</i>	
<b>CONSTRUCTION</b>	
<i>Mobilizations, Make Ready &amp; Access Zone</i>	
<i>Structural Upgrades</i>	

The following (i. – iii.) is the base WBS provided by your Project Superintendent. There are Maximum Working Days (WD) shown after certain WBS for assistance, which you are not required to match to the exact day; but they serve as a duration guide. Each WBS should contain a breakdown of activities which will demonstrate your knowledge of the entire project, its systems and subsystems to ensure a complete functioning buildout of the Emeryville MOB. Several WBS subcategories have been provided to assist in the building of your schedule. Remember, this only serves as a guideline, you will need to further detail the WBS as needed and most importantly incorporate the activities required to show the full flow of work from start to finish.

- i. Milestones (Constrained Dates)
  - a. Notice to Proceed Preconstruction (need to establish, see c.iii.)
  - b. Notice to Proceed Construction (December 16th, 2016)
  - c. Substantial Completion / Temporary Certificate of Occupancy (December 15th, 2017)
  - d. Final Completion / Certificate of Occupancy (February 9th, 2018)
- ii. Preconstruction
  - a. Design Development & Permitting (205 WD)
  - b. Bid Packages & Scope Buyout (85 WD)
  - c. Submittal Preparation & Review (145 WD)
  - d. Material Procurement
- iii. Construction (285 WD)
  - a. Mobilizations, Make Ready & Access Zone
  - b. Structural Upgrades (65 WD)
  - c. Framing & Rough-In (130 WD)
  - d. Finishes (135 WD)
  - e. Signage, Parking & Exterior (30 WD)
  - f. Punch List (90 WD)

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

- g. Equipment/Systems Startup, Testing & Commissioning (200 WD)
    - a. Medical (CT & MRI)
    - b. Electrical & Lighting
    - c. Mechanical
    - d. Plumbing & Medical Gas
    - e. Low Voltage, Telephone & Data
    - f. Fire Protection & Fire Alarm
  - c. CPM Schedule Body Breakdown
    - i. Calendar:
      - a. The schedule should be on a standard 5-day work week calendar and should account for all state of California non work days (holidays).
      - b. The following Figure “C” anticipated rain day calendar will need to be accounted for and applied to any/all activities that rain could potentially impact:
- Notes: Rain days can be accounted for on holidays.

Figure C:

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Rain Day(s)	6	6	5	4	3	1	0	0	1	2	4	6

- ii. Milestones:
  - a. Notice to Proceed (NTP).  
The Notice to Proceed date marks the date that the contract between you and the Owner has been issued. This will be the date utilized for the start of the contractual durations. This will also provide the date for when actual work on the project can begin, such as design for preconstruction and mobilization for construction.
  - b. Substantial Completion.  
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 energized and operational, and all code required inspections must be complete including the State Fire Marshal sign-off for Temporary Certificate of Occupancy. Final commissioning and punch list activities are not required to be complete, but the Owner must have walked and created their punch list in order to meet substantial completion.
  - c. Final Completion.  
Final Completion designates the date that all testing and commissioning activities, punch list items, closeout documents and State Fire Marshal inspections for Certificate of Occupancy have been completed and submitted to the Owner.
- iii. Design Development & Permitting
  - a. As the Design-Builder, you are heavily dependent on the design process and its progress as you move through the preconstruction phase towards construction. Design packages are often utilized to

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

allow construction to begin as the design is still being completed. To ensure the Project stays on schedule and is ready to hit the ground running with construction activities once the NTP for construction is received, a good portion of the 100% Construction Documents need to be submitted and approved in close proximity to this date. In addition, you will need to obtain the associated Building Permits from the City to be able to request code inspections for finished work prior to its cover up. You will need to establish the NTP for Preconstruction date to start your design activities by backing out from the NTP date for Construction.

- b. Provide the following phases under the Design WBS and incorporate applicable activities through their completion (i.e. Develop Documents/ User Meetings, Owner Review of Documents, Submit Documents, etc.):
  - 1) Schematic Design Development (40 WD)
    - i. Utilize a 100% SD Package
  - 2) Design Document Development (60 WD)
    - i. Utilize a 50% DD Package
    - ii. Utilize a 100% DD Package
  - 3) Construction Document Development (145 WD)
    - i. There will be three (DP1, DP2 & DP3) design packages.
    - ii. You will need to develop each Design Package in 50% and 100% phases.
    - iii. Utilize the following areas/scopes for your Design Packages (these are in no particular order):
      - 1. Tenant Improvement / Interior Buildout
      - 2. Signage, Parking & Exterior
      - 3. Structural, MEP Equipment & Make Ready Work

Notes: The Design Packages for construction cannot begin until the Design Document Development is complete. In addition, each Design Package must be close to completion before starting the next package.

- c. To obtain the required Building Permits to proceed further with construction activities, the City will need to review and approve the drawings within the Design Packages (Construction Documents). Utilize the following permitting activities within your schedule as needed for each Design Package to account for this time.
  - 1) Permitting (Durations are included within the 145 WD Construction Document Development)
    - i. City Plan Back check
    - ii. City Issue Building Permit
    - iii. Submit Drawings
    - iv. City Plan Check
    - v. Review and Incorporate City Comments
- iv. Bid Packages & Scope Buyout:
  - a. The bid packaging and scope buyout process will gather all of the work and material scopes needed for the project and allow Subcontractors to bid. From these bids, Hensel Phelps will award the packages and create specific subcontracts in relation to those

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

bid packages to get submittals and work in the field underway. As stated previously, the completion of portions of the Design Development Phase allows you to gather and issue the Bid Packages. Utilize the appropriate Design Development activity to kick off your Bid Packaging efforts.

- b. Assume 25 working days for preparation and award of bid packages, and an additional 15 working days to create subcontracts from each bid package. There will be five (5) bid packages total as follows:

- 1) Bid Package #1 – Structural
- 2) Bid Package #2 – Framing & Drywall
- 3) Bid Package #3 – Doors, Frames & HW
- 4) Bid Package #4 – Finishes & Specialties

Notes: Bid packages #3 & #4 cannot begin until #1 and #2 are complete. In addition, Letters of Intent are utilized and issued to Subcontractors to assist in expediting the start of work (i.e. submittals, material procurement, etc.) while or before the issuance of the actual Subcontract. It serves as written agreement that the Subcontractor has been awarded the scope of work for which they bid on and directs them to start on much needed submittal activities. Without the Bid Packages and Subcontractors bought out, certain scopes of work can't start, even if the aligning Design Package is complete.

- v. Submittal Preparation, Review & Approval:

- a. Submittal preparation and review allows time for your subcontractors to provide you with the product data (PD) and shop drawings (SD) related to their material and scope of work that they plan to utilize on the project. This time is also utilized for Hensel Phelps, the Design Team and Owner to review the submittal information for design compliance and acceptance.
- b. Assume a period of 20 working days for subcontractors to create submittals, 10 working days for internal review of submittals, 10 working days for submission and review to Architect/Engineer, and 20 working days for submission and review by the Owner.
- c. Provide Submittal activities for the following scopes:
  - a. Concrete Reinforcement
  - b. Steel & Metal Deck
  - c. Fire Protection (FP)
  - d. Mechanical, Electrical, Plumbing & Fire Alarm (MEPFA)
  - e. Doors, Frames and Hardware
  - f. Medical Equipment
  - g. Finishes (Casework, Paint, Flooring, Ceilings & Specialties)

Notes: Concrete and selective demo work will be self-performed, which means the internal submittal review and procurement activities can be omitted. Design Build Partners/Engineers, such as the Mechanical, Fire Protection, etc. Subcontractors will not need additional review/approve time since they prepared the submittals. You are not limited to only these submittals, add additional as you deem necessary.

- vi. Material Procurement:

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

- a. Material procurement is a very important aspect of any Project. In many cases, the material can't get on site fast enough to facilitate the Schedule. Before a Subcontractor can even start material procurement, you need approved submittals. In some cases, only the Architect/Engineer need to review/approve those submittals prior to the Subcontractor proceeding with material procurement. Similarly, to other sections, utilize the best activity as a predecessor to the Subcontracting procuring material. The schedule should depict material procurement (fabrication and delivery) of the following items.
- 1) Concrete Reinforcement (10 WD)
  - 2) Mechanical (40 WD)
  - 3) MRI Equipment (100 WD)
  - 4) CT Equipment (60 WD)
  - 5) Structural Steel/Metal Deck (20 WD)
  - 6) Medical Equipment (60 WD)
  - 7) Electrical Equipment (40 WD)
  - 8) Doors and Hardware (60 WD)
  - 9) Doors Frames (30 WD)
  - 10) Casework (40 WD)

Notes: Material Procurement activities cannot begin until its associated Buyout and Submittal activities have been completed. The Owner equipment is not directly procured by HP; however, our scope of work is effected by its delivery. You need to track its release. Do not forget to show an Owner activity for this. You are not limited to only these material deliveries, add additional as you deem necessary.

- d. Activities to assist in the Equipment Testing & Commissioning schedule buildout:
- i. Final Equipment Connections/Terminations
  - ii. Startup "Equipment" (Insert the equipment name)
  - iii. Test and Balance Air
  - iv. Space Complete Buildout
  - v. Set/Install "Equipment" (Insert the specific equipment name)
  - vi. Owner Functional Testing & Sign-Off
  - vii. Fire Marshal Testing & Inspection
  - viii. Energize Equipment
  - ix. Program System
  - x. Pre-functional Testing
  - xi. Chlorinate "System" (Insert specific system name)
  - xii. Fire Marshal Final Inspection & Sign-off
  - xiii. Equipment & Installation Code Inspections
  - xiv. Flush "System" (Insert specific system name)

Notes: You only need to specify the key/large pieces of equipment. Not all activities listed apply to all systems and they are not in sequence order. As the Design-Builder, you will need to apply all applicable activities to the necessary equipment/systems prior to their startup and testing. You can group certain activities as you like, but they need to be clear. Certain system activities are dependent on other system activities (for example – the low voltage equipment cannot be started up until the conditioned air is blowing). The "Space Complete



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

Buildout” may encompass more than one space. You will need to accommodate for that in your durations (i.e. TDR Rooms).

See Figure “D” example below for Electrical & Lighting:

Figure D:

Activity ID	Activity Description	Orig. Duration
<b>2017 ASC Reno Competition - Emeryville MOB</b>		<b>149</b>
<b>CONSTRUCTION</b>		<b>149</b>
<b>Equipment/Systems Startup, Testing &amp; Commissioning</b>		<b>149</b>
<b>Electrical &amp; Lighting</b>		<b>149</b>
ELCX-100	Set/Install ATS's, Panels & Transformers	20
ELCX-110	Final Equipment Connections/Terminations & Energize Equipment Level 4	5
ELCX-120	Final Equipment Connections/Terminations & Energize Equipment Level 3	5
ELCX-130	Final Equipment Connections/Terminations & Energize Equipment Level 2	5
ELCX-140	Final Equipment Connections/Terminations & Energize Equipment Level 1	5
ELCX-150	Program Lighting System	5
ELCX-160	Prefunctional Testing	5
ELCX-170	Owner Functional Testing & Sign-Off	5

- e. General schedule buildout and activity notes for assistance:
  - i. Design Development:
    - a. When you submit drawings for review, make sure you take into account an activity for reviewing/incorporating comments into the design.
  - ii. Punch List
    - a. You can't punch all floors at the same time.
    - b. You need to designate two separate punch walks for the Architect/Engineer and the Owner.
    - c. Before you can punch a space, you need to ensure you complete your “Work to Complete” and “Initial Clean” activities.
    - d. You always need a final punch list back check walk.
    - e. You can't punch a space without the permanent lights on.
- f. Schedule Focus Item Questions:
  - i. What date did you receive the NTP for Preconstruction?
  - ii. What date will you complete all of the structural (steel, deck infills, roof pads, etc.) upgrades?
  - iii. What is the earliest date you will be able to set the MRI and CT Equipment?
  - iv. For each floor, what is the earliest date you can startup the Air Handler Unit, and what date can you run air in the space?
  - v. For each floor, what is the earliest date that permanent lights and receptacles can be utilized and energized?
  - vi. Provide the list of activities on the anticipated rain day calendar and a short explanation as to why each of those activities are on the calendar.
  - vii. Explain your Critical Path and why are these activities on the Critical Path.

**Schedule Deliverables:**

- 1) Submit the Full Baseline CPM Schedule in Native File Format (i.e. XER file).
- 2) Submit (2) electronic copies (.xls) of the Full CPM's Activity ID and Activity Description only list.
- 3) Submit (1) hard copy and (2) electronic copies (pdf) of the following CPM Reports:
  - a. Full CPM with no WBS: Filtering all activities sorted by start date.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

- b. Primary Critical Path with no WBS: Sorted by start date.
  - c. Full CPM with WBS: Sorted by start date.
  - d. Full WBS Only Report: Sorted by early start date.
- 4) Submit (1) hard copy and (2) electronic copies (pdf) of the responses to the Schedule Focus Item Questions.

**Answer:**

**See CPM Schedule, CPM Reports and Focus Item Questions Response in Section X.5.1.a**

**Associated Schools of Construction Competition**  
**Region VII – Commercial Building Division**  
**February 8-11, 2017**

## **6. COORDINATION OF WORK**

Written by Brendan Miller

### **PART A: Address Action Items from the MRI Equipment Delivery Field Walk**

*(Time warp to Interior Buildout Phase, Pre-MRI Delivery. Consider this section independent of other problem sections.)*

You are the Area Superintendent on the project who will be responsible for the pre-planning coordination for the MRI medical equipment delivery. This is a vendor-furnished, vendor-installed (VFVI) piece of equipment through the Owner's vendor.

Your team received notification from the Owner that the MRI medical equipment scope has officially been awarded to Philips and a delivery date has been scheduled. The Owner's Project Manager has communicated that he would like to set up a preconstruction field walk with all of the subcontractors and designers that will be involved in this scope on the project. The intent of this meeting is to walk the path of travel to move in the equipment with the key field personnel from the parties that will be involved with the move-in scope. It is necessary to review the path of travel in order to identify how the MRI machine, once procured and delivered, will be safely hoisted and delivered into the building. The team wants to be proactive in identifying any potential constraints in the field prior to the delivery date.

During this meeting, there were several action items identified that require follow-up from you in order to address potential issues that were discovered:

- 1) While walking with the Philips representative, it was communicated that they don't provide the MRI shielding plate as it is typically provided "by others". None of the subcontractors on the walk were aware of this scope item, which means this may be a scope gap, and it may not have been purchased with anyone during buyout. After talking with your Project Manager about the issue, you know that the scope could have been picked up by any of the following subcontractors: 1) *Metal Deck*, 2) *Structural Steel* 3) *Concrete & Reinforcing*, or 4) *RF and Magnetic (not Lead) Shielding*
  - a. Using the inclusions and exclusions sections outlined within the executed subcontracts provided within attachment X.6.1.1, identify whether or not this scope has been bought out with any of the subcontractors, and if so, by who.
- 2) During the field walk, the move-in path of the MRI equipment was finalized and the CPM schedule activities leading up to the delivery date was reviewed with all parties. The rigging contractor determined that the east wall of the MRI Room #2313 would need to be left out due to the size of the MRI unit. This information now needs to be coordinated with the appropriate parties in order to minimize cost impacts due to the re-mobilization that will now be required.
  - a. Using the move-in path plan shown within attachment X.6.2.1 and the drawings provided, write a narrative that identifies your team's plan to minimize the amount of scopes that will be impacted by this work and identify which scopes will be impacted so that the proper subcontractors can be notified (i.e. Framing, Drywall, etc.).
- 3) The metal stud subcontractor and RF shielding subcontractor determined during the walk that the column at Gridline B and Gridline 6 will conflict with the new 45 degree wall that is to be installed due to the pre-existing 2" fireproofing on the column.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

- a. Using the attachments provided within attachment X.6.3.1, provide a solution to address the issue and submit a formal Request for Information (RFI) using the template provided and provide a corresponding sketch to the Architect in order to effectively communicate and properly document the change.

**PART A Deliverables:**

1. Submit (1) 8 ½" x 11" hard copy and (2) electronic copies (pdf) in an e-mail format with your findings addressed to your Project Manager.
2. Submit (1) 8 ½" x 11" hard copy and (2) electronic copies (pdf) of formal direction (letter or email format) to the applicable subcontractors that will be affected by this decision.
3. Submit (1) 8 ½" x 11" hard copy and (2) electronic copies (pdf) of your drafted RFI and sketch.

**Answer:**

- 1) ***See appendix X.6.1.1.a Answers. Scope is captured in both the Steel Subcontract (0510000 Contract Line Item #36) and the RF and Magnetic Shielding Subcontract (1300500 Line Item #10 & #15). The scope was originally purchased with the steel subcontractor, however it was identified later that this was too complex of a scope for the steel subcontractor to perform, so the scope was purchased later on as well within the RF and Magnetic Shielding bid package and a credit was received from the steel subcontractor.***
- 2) ***See appendix X.6.2.1.a Answers for the actual plan to minimize impacts. The team partially framed the full height wall from the bottom of deck down to a height of 8 feet which allowed for overhead MEPF and ceiling to not be impacted. RFI 220.2 illustrates how the remaining wall was infilled after the MRI move-in. Based on the sequence of the schedule, the following trades require additional coordination to accommodate the wall being left out for the MRI move-in path: Framing, Insulation, Drywall, RF Shielding, Casework, Flooring/Base, Paint, In-Wall Plumbing, In-Wall Electrical.***
- 3) ***See appendix X.6.3.1.a Answers, solution proposed was to shift wall 0'-6" to the N to allow space for column. An RFI tutorial has been provided within the answer attachment to communicate the steps to authoring a good RFI.***

**PART B: Create a Lift Drawing to Identify Framing Backing Requirements for MRI Room**

*(Time warp to Interior Buildout Phase, Pre MRI Delivery. Consider this section independent of other problem sections)*

Congratulations, you just successfully completed the MRI Equipment Move-In and now it is time to finish the remaining scopes of work that you strategically left out in order to accommodate the MRI delivery. You are now the Field Engineer that is working under the Area Superintendent that is in charge of the MRI Room build-out.

The metal stud framing subcontractor has indicated that they need casework backing locations identified within the following MRI rooms before they are able to complete the In-Wall Close-In Inspection that you have scheduled for later this week before drywall hanging can begin.

These rooms are:

- Control Room (Zone III) #2311
- MRI Room (Zone IV) #2313

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

After coordinating with the casework subcontractor, you determine the following:

- Most of the casework backing requirements are identified within the Approved Casework Shop Drawings (X.6.4.1).
- The casework detailer is on vacation through the end of next week, so you will have to determine the remainder of the backing locations using the contract drawings in order to get the framing subcontractor the information they need to complete their In-Wall Close-In Inspection by the end of the week.

In addition to the shop drawings provided above, X.6.4.2 includes all the design documents that you need to aid in the development of your detailed lift drawing. This lift drawing must include the following:

- (1) Enlarged Floor Plan of Each Room per Page with a Title Block
  - o Floor Plans are to have callouts to Elevation Views
- Elevation Dimensions to Centerline of Backing in inches from finish floor (tolerance will be 1")
- Corresponding Legend to distinguish between backing Types A, B & C
- Producing a professional grade drawing in electronic format is strongly encouraged!

**PART B Deliverables:**

1. Submit (1) 11"x17" hard copy and (2) electronic copies (pdf) of your completed In-Wall Backing Lift Drawing.

***Answer: See In-Wall Backing Lift Drawing Section X.6.4.1.a.***



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **7. CHANGE MANAGEMENT**

Written by Brandon Engler & Graded by Monica Ashley

*(Time Warp to receipt of submittals)*

As an office engineer, your responsibilities include procurement and timely delivery of materials to the project, processing material submittals and reviewing shop drawings for specification/contract drawing conformance, drafting requests for information, as well as assisting the project team in timely resolution of field issues.

The submittal review process is particularly important for the purpose of verifying conformance with the applicable contract documents; including the plans, specifications, Subcontract Agreements, and most importantly on a Design Build project, the Owner's program criteria. As the Office Engineer, you have the responsibility for the full review, markup, and ensuring correction of submittals by the Subcontractor. Although the Architect and Engineer normally make corrections and have authority to approve or disapprove submittals, it is not the Hensel Phelps Way to rely on the review of the Architect or Engineer. Most Architect and Engineer's stamps incorporate language that limit their responsibility for errors or omissions, and under no circumstances does review by the Architect or Engineer waive the Contractor's requirement to meet the requirements of the contract documents. Additionally, submittals must be reviewed for issues related to planning, scheduling, and coordination that would not be caught by the Architect or Engineer.

Proper review and timely processing of submittals is important to ensure the correct product size, color, finish, etc. is being installed as defined by the Owner's requirements and as detailed in the contract documents. This crucial review step can prevent rework by Subcontractors and Hensel Phelps, as well as avoid redesign by the Design Team. Ultimately, a comprehensive submittal review prevents unnecessary costs and the potential for schedule impacts.

Utilizing the attachments listed below, perform a comprehensive submittal review and annotate all discrepancies. The submittal review should be limited to Sterile Processing Room 2317.

- Attachment X.7.1 - Doors & HW Product Data Submittal
- Attachment X.7.2 - Plan sheets A2.22, A2.02C, A10.51, and A10.55
- Attachment X.7.3 - Division 08 Specifications
- Attachment X.7.4 - Project Criteria Section C10
- Attachment X.0.3 - Request for Information Template

### **Submittal Review Deliverables:**

1. Submit (2) electronic copies and (1) hard copy of the reviewed Doors & HW submittal package X.7.1. Any mark-ups/notes should be made in different color text.
2. Utilizing the provided RFI template in Section X.0.3, Draft an RFI to the architect utilizing the provided attachments and information above. The RFI should provide specific reference to the identified discrepancies.

***Answer: See attached answer X.7.1.a including submittal review and answer X.7.2.a RFI - Door/frame material requirements - Door schedule shows HMF, Program document require stainless steel.***

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **8. PERSONNEL ISSUES**

Written by Stephanie Wilborn & Graded by Don Hill

**\*\*EARLY DELIVERABLE – 2:00 PM\*\***

### **Part A: Area Superintendent Chad**

You are a Project Superintendent on the project. You are conducting a performance review of your subordinate, Area Superintendent Chad, when you call into question some decisions he's recently made that had negative outcomes. He mentions that he stands by his decisions, but the outcomes were in part because he's having difficulty with his Field Engineer Alice. He states that Alice has a poor attitude, is unwilling to listen to his feedback or advice, and regularly yells at the subcontractors. This is the first time you've heard that Alice is performing and behaving poorly, so you make a note to talk to her over the next couple days.

When you speak with Alice, she admits that she's been having difficulty working with Chad. Alice insists though that the problem is with Chad and not herself. She mentions that she previously felt too intimidated to speak up because Chad is so well-liked by you.

Both can't be telling the truth, so you decide to get to the bottom of this and meet with a handful of Hensel Phelps field employees and subcontractors Alice and Chad interact with. After only a few discussions, it becomes clear that the issue lies with your Area Superintendent as multiple people have grievances with him. They repeat what Alice told you, that they were too intimidated previously to speak up due to Chad being so well-liked by you.

You always pride yourself on having an open door and wonder how your team became too intimidated to talk or express concerns to you. You are also perturbed by the fact that Chad lied in his performance review and tried to blame others for his mistakes. This behavior hasn't always been exhibited by him and only surfaced when he was placed in leadership positions.

One of your favorite things about Hensel Phelps is its extensive resources and training materials. You know that this is the perfect opportunity to utilize those trainings and specifically the ones that address positions in leadership, both as a reminder for yourself and the difficult conversation you need to have with Chad.

You have two handouts from a previous training that you plan to reference.

1. X.8.1, 'Understanding the Obstacles of Difficult Conversations' – This can be used to help generate ideas when outlining your difficult conversation with Chad.
2. X.8.2, 'Personal Application' (Optional) – This can be used as a guide or the structure for outlining your difficult conversation.

Please provide an outline, creating your own or by using attachment X.8.2, of how you would handle this difficult conversation with Chad.

***ANSWER: See Personal Application in Section X.8.2.a***

### **Part B: Community Relationships**

As previously mentioned, the surrounding neighborhood is "up and coming" with a growing Bay Area business economy and resident population. The Owner, and their respective healthcare brand, is unfamiliar to this specific area and has mentioned in previous conversations that it's

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

important to the Owner to establish positive relationships with the community and local businesses.

As a Hensel Phelps Project Manager, you know all about building strong relationships as it is at the core of “the Hensel Phelps Way” and any project’s success. In your next Owner’s meeting, your team suggests co-hosting a community event with the project. You explain that this would provide an opportunity where local residents and businesses can learn information about the project and in the process, become familiarized with its services.

The Owner loves the idea and asks you and your team to develop two items for the following Owner’s meeting: a brief outline that describes the type of event with three reasons why this event will contribute to the success of building positive relationships with the community and a simple flyer advertising the event.

**Personnel Deliverables:**

**\*\*ITEM #1 IS THE ONLY EARLY DELIVERABLE AT 2:00 PM\*\***

1. Submit (1) one hard copy and one (1) electronic copy in native format of your outline for how you plan to handle the difficult conversation with Chad in Part A.
2. Submit (1) one hard copy and one (1) electronic copy of your community event outline in Part B.
3. Submit (1) one hard copy and one (1) electronic copy of your community event flyer in Part B.

***ANSWER: The premise for this event is to provide the community with a forum to seek out information regarding the construction and end use of this project. An example of the event outline is as follows:***

***Meeting Date: Wednesday, February 15, 2017***

***Meeting Time: 5:00pm – 7:00pm***

***Location – City Hall, Main Hall area***

***Agenda:***

- 1. Introductions & Opening Remarks (Hensel Phelps & Healthcare Representative)***
- 2. Project Overview (Healthcare Representative)***
- 3. Project Status/Schedule Update (Hensel Phelps)***
- 4. Construction Mitigation Measures (Hensel Phelps)***
  - a. Noise***
  - b. Traffic Congestion***
    - i. Parking***
    - ii. Deliveries***
    - iii. Street Closures***
    - iv. Sidewalk Closures***
  - c. Light Pollution***
  - d. SWPPP***
- 5. Open Forum for Community Members***
- 6. Closing Remarks (Healthcare Representative)***

***Also see ‘Example Flyer for an Information Session’ in Section X.8.3.a.***

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **9. SAFETY**

Written by Jon Peltz

*(Time Warp to one month before each of the work activities below)*

### **Part A: AHA Review**

Safety, like quality and production is crucial to the success of any project. A safe work environment is a legal and moral obligation and has been proven to increase morale, production and ultimately saves the project money.

An Activity Hazard Analysis (AHA) is required prior to beginning any scope of work on the project to assist in mitigating all risks associated with the job task. The AHA should indicate each job step required to complete the activity. The AHA should be detailed enough so all risks are identified and mitigated.

On this project the AHA are starting to come in for review and must be approved by Hensel Phelps prior to work beginning. Your superintendent has asked in your assistance in reviewing and commenting on the AHA provided by the framer. Upon review of the AHA you have identified that the man lift operation and material offloading tasks are not very thorough. Review the AHA provided on attachment X.9.1 and provide comment on the material offloading and man lift operation sections. Provide all comments using **Red Color Font** when submitting your deliverable.

**Answer:** See reviewed Activity Hazard Analysis for the Framing Subcontractor in Section X.9.1.a

### **Part B: AHA Development**

There are many heavy materials and equipment that need to be brought into the building for levels 1 through 4. Your superintendent has come up with a plan to bring materials through the side of the building using lifts and cranes to offload the heavy items. Part of the building exterior has to be removed in this operation to facilitate entry of the materials and equipment. Your superintendent has asked that you come up with a draft AHA to remove a portion of the exterior of the building and safe it off for use as material loading points. The AHA should also address the material and equipment offloading steps within the AHA. Fall protection, falling objects, traffic (Pedestrian and Vehicle) are some of the hazards that should be reviewed and addressed in your AHA. Create a first draft AHA for review and submit on the template provided in attachment X.9.2. An AHA development guide and the Hensel Phelps code of safe practices has been provided for your use, see attachments X.9.3 and X.9.4. Lastly, you **must** use, at minimum, the following work steps in your AHA.

- Remove Exterior Face of Building
  - Be sure to include Personal Protective Equipment Policies in your AHA
- Receive Materials/Working Near the Loading Points
  - Be sure to include working with ladders in your AHA
- Offloading Material and Equipment off Truck
  - Be sure to include working with and using Powered Industrial Equipment and/or crane operation in your AHA.
- Hoisting Materials
- Off Hour Safe-off Requirements (i.e. when the space is not being used; what hazards are present and how will you mitigate them.)

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

**Safety Deliverables:**

1. Submit (1) hard copy and (2) electronic copies of the Reviewed/Commented Framer's AHA.
2. Submit (1) hard copy and (2) electronic copies of developed Removal of Building Exterior and Material Offloading AHA.

***Answer: See Building Exterior and Material Offloading in Section X.9.2.a.***

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **10. SITE UTILIZATION**

Written by Branden Laptalo

Given the minimal site real estate available to our team, the Owner's vendors, medical equipment vendors, and neighboring tenants, our team has stressed the importance of a well-planned and implemented site utilization plan. This document will be the sole visual tool utilized by multiple parties to coordinate work, lay-down and storage areas, egress pathway, emergency services/utility shut-down points, traffic control, pedestrian control, and important public signage. A mismanaged site utilization plan will lead to inefficiencies, safety risks, quality concerns, and general disorganization.

The job is full steam ahead with construction, and the Owner has requested your site utilization plan to coordinate with their vendors (IT, Security, Nurse Call, Medical Equipment, etc.). Demonstrate your ability to manage and plan a well-coordinated site by providing a site utilization plan to the Owner.

### **Part A: Noise Mitigation**

*(Time Warp to Interior Finishes)*

The Owner has been notified, through City Council that local residents are complaining about equipment noise on the roof. Please see the attached letter from the City (attachment X.10.1). The team has taken great care, per the RFP and City conditional use requirements, to ensure the design does not exceed City requirements for noise. This has not prevented the locals from issuing formal complaints and putting the burden on the team to ensure the project is not creating excessive noise pollution in the local community. Provide a short written response letter, referencing the requirements in the conditional use permit (attachment X.10.2), on how the team plans to address the issue and what the final result is to prevent continued schedule delay.

**Answer: See Section X.10.1.a - Noise Letter Response - Answer.**

***Letters have been graded on the following criteria: grammar, approach to solution (i.e. validation of claim, relation of findings to conditional use permit requirements as well as action plan if applicable) and final conclusion of issue. For the purposes of this problem, we've showcased that we performed readings around the jobsite which proved that we were in compliance with the Conditional Use Permit requirements and have indicated that we discussed this matter immediately with the City. Other approaches were deemed acceptable granted they followed the basic criteria outlined above.***

### **Part B: Material Hoist Location**

Given that the existing core and shell building is complete, the Superintendent is trying to figure out the best way to get material and major medical equipment on the upper floors (Levels 2-4). Propose a short (1-2 Paragraph) solution/narrative, along with a highlighted drawing showing removal of what portion(s) of the exterior skin, to allow framing and other bulk material deliveries on the upper levels. Please note the freight elevator size: the door is 52" x 95", and the cab is 70" x 100" x 105" (Capacity of 5,000 lbs). The floor to metal deck height is 14'-6" and our framing partner has requested full height studs to reduce overall project cost.\*\*

***\*\*Note/Hint: The largest pieces of medical equipment are shown in Exhibit X.10.3 through Exhibit X.10.5 and will also be referenced in Part C below.***



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

**Answer: See Section X.10.B.a - Material Hoist – Answer.**

***The original plan for the MOB was to remove pre-cast along the entire bay up the building (except the roof). At first thought, this was the best solution as the pre-cast contractor was making the trip out for the MRI/CT opening and it made sense to remove more in that same trip. This would have allowed framing and all other materials easy access to the floors from a forklift on the street. The Project Superintendent had an idea before executing such plan to limit the extent of precast removal to gain that valuable time back in the schedule.***

***Instead of removing the pre-cast the entire bay up the building, he concluded that removing just enough for the MRI/CT on the second level and the third level would provide the same access for those levels as originally planned; however, for level 4 we could keep the pre-cast and glazing in place. Instead, we removed the storefront system at the level 4 patio and lifted materials up to the patio and then into the building from there. This solution saved considerable dollars as less trucking, less storage of pre-cast, less time for reinstallation were needed; and this solution allowed finishes installation activities to begin earlier on level 4.***

**Part C: Construction Site Utilization Plan**

1. Create a site utilization plan and be ready to present it in the Third Point Review. Show all necessary components to providing a safe and efficient jobsite. Utilize the backgrounds in attachment X.10.6 to be the foundation of the plan. As a starting point, show all common components to a Site Utilization plan like dumpsters, life safety components, and emergency gathering area (this is not an exhaustive list and research may need to be conducted to get an idea of what else should be planned and shown on a site utilization plan).
2. Create an exhibit showing major medical equipment pathway to their respective rooms and denote any leave-outs needed for delivery (Perform this analysis for the equipment shown is attachments X.10.3 through X.10.5, MRI/CT/Hybrid) – These routes should be shown on an independent sheet from your site utilization plan, but can use the same backgrounds as a foundation.
  - a. What is the MRI wall opening needed for delivery?
  - b. Do any other walls need to be left uncompleted for the delivery of the equipment?
3. Determine/Verify Crane Loading and picking point for major HVAC pick.
  - a. Your Mechanical Trade Partner has provided a pick plan for the equipment shown in attachment X.10.7 and the Superintendent has asked that you verify the calculations to determine if any pick needs to be classified as critical (critical picks require additional procedures and personnel on the day of the pick).
    - i. Fill in the attached missing information from the pick plan, attachment X.10.8, and determine if any pick during this operation will be considered “critical.”
      1. Note: A critical pick is considered to be 75% and higher of capacity and engages additional procedures.
  - b. Display crane location
    - i. Note PG&E informed the team that no outrigger shall be placed past the double yellow line due to an existing gas line on the west side of the road.
    - ii. Overlay your proposed location, to scale, on Google Earth.
    - iii. Provide a brief narrative to logically defend your location

**Answers: See X.10.6.a - Site Utilization Backgrounds – Answer, X.10.C.2.a - Medical Equipment Maps – Answer, and x.10.8.a - Crane Exercise - Answer**

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

**Site Utilization Deliverables:**

1. Submit (1) hard copy and (2) electronic copies of the Part A response letter (pdf).
2. Submit (1) hard copy and (2) electronic copies of the Part B narrative and drawing (pdf).
3. Submit (1) hard copy and (2) electronic copies of the Part C.1 Site Utilization Plan (pdf).
4. Submit (1) hard copy and (2) electronic copies of the Part C.2 Medical Equipment Pathways (pdf).
5. Submit (1) hard copy and (2) electronic copies of the Part C.3 Critical Pick Crane Exercise and Suggested Pick Point (pdf).

## **11. QUALITY CONTROL**

Written by Stephanie Reveles

*(Time Warp to 2 months prior to GMP)*

You are the Project Superintendent and the Owner approached you requesting a full physical mock-up of Operating Rooms and a cluster of four Exam Rooms at no additional cost. The Owner expressed the importance of a full physical mock of the spaces and equipment. The articulating operating booms, equipment layout and staff placement all play an important role to doctors and nurses. The result of an efficient layout could be lifesaving during a crucial time of an operating procedure.

Understanding the mock-up was not part of the original plan, nor does the project have the budget you consider using a 3D model or a scaled model instead. However, in your experience as a seasoned project superintendent, you understand the effects of establishing a relationship with the Owner early in a project can go a long way.

### **Part A: Mock-Up Letter**

Based on establishing a good relationship for the rest of the project, provide a letter back to the Owner with your mock up decision written on Hensel Phelps letter head. Describe what potential concerns may arise with cost and constructability. Justify why the items you describe deserve special consideration.

### **Part B: Code Accessibility Inspection**

During the review of the mock-up decided in Part A, it was noted a few items were non-compliant with 2013 California Building Code regarding accessibility. Using attachment X.11.4 California Accessibility Quick Card, review the mockup plans, X.11.3, for non-compliant accessible spaces or elements. Provide a description, location and action plan for each item identified using Quality Action Log X.11.2.

#### **Quality Control Deliverables:**

1. Submit (1) hard copy and (2) electronic copies (PDF) of Part A: Mock Up letter.
2. Submit (1) hard copy and (2) electronic copies (PDF) of Part B: Quality Action Plan.

**Answer: See Mock-up Letter X.11.1.a and Quality Action Log X.11.2.a. The key points for the Mock-up Letter should include:**

- **Acknowledgment of different models considered**
- **Addressing who is providing the cost**
- **Briefly mention a timeline of model schedule.**
- **Discuss resources utilized.**
- **Identify owner's benefit for decision.**

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **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.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **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.	Financial Status Report	8
2.	Estimate	16
3.	General Conditions	10
4.	Proposal Summary	14
5.	Schedule	20
6.	Coordination of Work	8
7.	Change Management	6
8.	Personnel Issues	8
9.	Safety	6
10.	Site Utilization	14
11.	Quality Control	8
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:  $\frac{1}{2}$  **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.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **VIII. LIST OF JUDGES**

### **Oral Presentation Judges:**

Sean Carolan, Operations Manager  
(408) 452-1800  
scarolan@henselphelps.com

Northern California District  
226 Airport Parkway, Suite 150  
San Jose, CA 95110

Aaron Hale, Area Superintendent  
(408) 452-1800  
AHale@henselphelps.com

Northern California District  
226 Airport Parkway, Suite 150  
San Jose, CA 95110

Amanda DeTemple, Office Engineer  
(480) 383-8480  
ADeTemple@henselphelps.com

Western District  
4129 East Van Buren, Suite 100  
Phoenix, AZ 85008

Stephanie Carter, Project Engineer  
(949) 852-0111  
Scarter2@henselphelps.com

Southern California District  
18850 Von Karman Ave., Suite 100  
Irvine, CA 92612

Mike Gianfelice, Project Engineer  
(408) 452-1800  
MGianfelice@henselphelps.com

Northern California District  
226 Airport Parkway, Suite 150  
San Jose, CA 95110

Branden Laptalo, Project Engineer  
(408) 452-1800  
BLaptalo@henselphelps.com

Northern California District  
226 Airport Parkway, Suite 150  
San Jose, CA 95110

### **Alternates:**

Brendan Miller, Project Engineer  
(480) 383-8480  
Bjmiller2@henselphelps.com

Western District  
4129 East Van Buren, Suite 100  
Phoenix, AZ 85008

Tedd Mason, Project Engineer  
(949) 852-0111  
tmason@henselphelps.com

Southern California District  
18850 Von Karman Ave., Suite 100  
Irvine, CA 92612

### **Administrator / Executive Judge:**

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

Northern California District  
226 Airport Parkway, Suite 150  
San Jose, CA 95110



**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **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.

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

- 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 Confidentiality 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.**

**Associated Schools of Construction Competition  
Region VII – Commercial Building Division  
February 8-11, 2017**

## **X. SUPPLEMENTAL INFORMATION**

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

01	Contract Drawings
X.0.3	Request for Information Form
X.0.4	Evaluation Form
X.1.1	FSR
X.1.2.1	Owner's Builders Risk
X.1.2.2	Difference in Coverage
X.1.3	Insurance Quote
X.2.1	Hensel Phelps Subcontractor Unit Cost Rate Sheet
X.2.2	Estimate Drawings
X.2.3	Drywall Estimate Spreadsheet
X.2.4	Existing Fire Life Safety Partition Drawings
X.2.5	Wall Type Estimate Template
X.3.1	Company Historical Rates
X.3.2	Staffing Matrix Template
X.3.3	GC Template
X.4.1	Proposal Summary Templates
X.4.2	Subcontractor Quotes
X.6.1.1	Executed Subcontracts
X.6.2.1	MRI Move-In Path
X.6.3.1	Column Conflict with Wall
X.6.4.1	Approved Casework Shop Drawings
X.6.4.2	Design Drawings
X.7.1	Door & HW Product Data Submittal
X.7.2	Plan Sheets
X.7.3	Division 8 Specifications
X.7.4	Project Criteria Section C10
X.8.1	Understanding the Obstacles of Difficult Conversations
X.8.2	Personal Application
X.9.1	Framing Studs AHA Draft
X.9.2	AHA Template
X.9.3	AHA Development Guide
X.9.4	Code of Safe Practice
X.10.1	Noise Letter
X.10.2	Conditional Use Permit
X.10.3	MRI Drawings
X.10.4	CT Drawings
X.10.5	Hybrid or Zeego Drawings
X.10.6	Site Utilization Backgrounds
X.10.7	Mechanical Equipment
X.10.8	Crane Exercise
X.11.1	Hensel Phelps Letterhead
X.11.2	Quality Action Log Blank
X.11.3	Mock Up Drawings
X.11.4	CBC 11B Quick Card