

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



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

Region 7- Commercial Building Division

February 8-10, 2018

Problem Statement



LUHRS MARRIOTT

Phoenix, AZ

Problem Sponsor:



HENSEL PHELPS
Plan. Build. Manage.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

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

12121 Grant Street, Suite 410
Thornton, CO 80241
(720) 592-2000

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

Pacific Northwest Area Office

15375 SE 30th Place, Suite 110
Bellevue, WA 98007
(425) 646-2660

Corporate Office

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

www.henselphelps.com



HENSEL PHELPS
Plan. Build. Manage.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

I. COMMERCIAL DIVISION TIME TABLE

THURSDAY, FEBRUARY 8TH

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
Proposals Due	11:00 PM

FRIDAY, FEBRUARY 9TH

Interview Materials Due (all teams)	6:45 AM
Interviews Start	7:00 AM
Project Debriefing.....	6:30 PM

SATURDAY, FEBRUARY 10TH

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

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

II. PREFACE

WELCOME to the 2018 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 7 – Commercial Building Division
February 8-10, 2018

III. PROBLEM SCENARIO (Ed Gomez)

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

Phoenix is one of the slowest areas to recover from the 2008 recession and the Western District Office is having a difficult time competing for projects due to a highly competitive market. Compounding the issue, the District will have a significant number of personnel becoming available soon, and it's important to procure a project for their assignments.

Our company has a long history of building hotels and hospitality facilities all over the country for some of the largest hotel flags in the United States. Some time ago, Hensel Phelps pursued a hotel for a developer through a design-bid-build process, but unfortunately, we were not selected. At that point in time, the developer decided to award it to a different contractor.

After award, the developer and the chosen contractor were not able to come to contract terms. In an effort to push the project forward, the developer made an attempt to proceed without a general contractor; however, they quickly determined that the task was not feasible with the resources and staff experience available. For this reason, the developer elected to go to the number two on the bid list, and has contacted our District Manager in the Western District of Hensel Phelps to evaluate the opportunity to be awarded this project.

The Anaheim-based developer has already contracted some of the major subcontractors for the project and plans on assigning them to us as part of the agreement. In addition, as all developers do, they would like to start construction as soon as possible.

Our firm has taken particular interest in this project and considers it to be a good opportunity to build a long lasting relationship with a new developer who is planning on doing a lot more work in the area. The developer has asked us to confirm if our proposal is still valid, including the schedule duration.

You must review the proposal and advise the District Manager if your team recommends that we should move forward with this project. Your recommendation is due by 11:00 PM tonight, and you will be asked to present your findings in a Project Opportunity Review meeting with Upper Management tomorrow. Interim progress meetings are scheduled for 10:00 AM and 2:00 PM today (Thursday, February 8th).

Any questions should be delivered, in writing on the Request for Information form (RFI), to the senior 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 Project Opportunity Review meeting, at some point in the project. 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 7 – Commercial Building Division
February 8-10, 2018**

IV. PROJECT INFORMATION (Ed Gomez)

The developer for the Luhrs Marriott has purchased a city block with existing buildings and a parking garage. This older property is located across the street from a new mixed-use development and a few city blocks from the Phoenix Suns arena as well as the Arizona Diamondbacks baseball park. There is currently a shortage of hotels in the area and the developer has invested nicely, since it is just a matter of time before the market explodes.

The project team consists of the developer's onsite representative (Owner), an architectural firm based out of San Diego and a combination of engineers and designers located in both Phoenix and California. In addition, the Owner has stipulated the use of subcontractors that they have utilized for smaller renovation projects in the existing buildings located on the property. Your firm has limited experience working with these subcontractors, but they have all communicated to you that the Owner is in over their head and they welcome having a general contractor onboard.

Hensel Phelps will hold all subcontracts and shall be fully responsible for the construction services including the means and methods of construction, construction execution, progress schedule, weekly progress meetings, coordinate testing and inspections, project safety, project completion 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.

The hotel will be a dual flagged Marriott Hotel in downtown Phoenix valued at roughly \$50,000,000. The hotel tower will be constructed with a zero lot line on one corner of the city block immediately adjacent to a parking garage and an existing office building.



This 240,000 SF development consists of 20 floors of hotel space, encompassing 320 guestrooms. The basement level houses maintenance facilities, electrical rooms and a large vault housing equipment for the Arizona Public Service Electrical Company (APS) that serves other properties in the area. The hotel provides Courtyard Rooms on Levels 5 through 9 and Residence

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

Inn Suites on Levels 10 through 19. The hotel also provides areas and amenities for dining, lounge, pool, exercise and equipment on Levels 1 through 4.

A 6-ft cast-in-place mat slab will serve as the foundation. The vertical structure is also cast-in-place concrete with formed post-tensioned slabs. Vertical structural support is provided by concrete columns and shear walls extending through the roof level. A mechanical penthouse will be constructed of structural steel columns and cross members with a composite metal deck.

The exterior skin consists of EIFS, thin brick veneer and glass curtain wall system. A small roof on the 5th floor, the main roof and mechanical penthouse roof consists of PVC membrane. Another facet of the exterior envelope are the skylights on the 5th floor roof which provide natural light above the indoor pool.

Air handlers for the mechanical system are located at the basement level, level 2, and level 4 which provide cooling for Levels 1 through 4. The guestroom levels are served by local fan coil units in each room, fed by a chiller plant located in the mechanical penthouse.

The project duration is an aggressive 23 months. There is a rumor that the schedule duration was a major factor that prevented the Owner from coming to terms with the previous low bidder. Your superintendent has reviewed the scope and feels confident that utilizing a Short Interval Production Schedule (SIPS) to sequence the work on the guestroom floors will help meet the 23-month duration. This approach will help the subcontractors plan deliveries and schedule manpower as required on a floor-by-floor basis. This will also help develop a good flow of construction and inspections which will result in providing an efficient, safe and quality product to the Owner.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

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).....	17
5. SCHEDULE	17
6. COORDINATION OF WORK	27
7. CHANGE MANAGEMENT	29
8. PERSONNEL ISSUES	31
9. SAFETY	33
10. SITE UTILIZATION	33
11. QUALITY CONTROL	34
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

Unless stated otherwise, one (1) hard copy and two (2) electronic copies of your proposal are due at 11:00 PM, 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 7 – Commercial Building Division
February 8-10, 2018

1. General Summary

Written by Monica Ashley and Scored by Stephanie Reveles

Your meeting with upper management tomorrow will solidify if our team will accept the request to build this project. As mentioned, the Developer has requested that we confirm our original proposal and commit to utilizing the stipulated subcontractors provided. In addition to schedule and staffing validations, a comprehensive review of costs shall be completed. Your team has been working for the past week to review original proposals with the subcontractor community and is almost finished with the complete analysis. There are a few missing pieces which are needed to finalize your team's recommendation if we should move forward with this opportunity.

PART A: General Summary

Use the General Summary spreadsheet included in Section X.1.1 to compare the original budgets included in the initial proposal to the current values provided. Use the values given in Section X.1.1 along with the final amounts as determined within Section 2 (Estimate), Section 3 (General Conditions), and Section 4 (Proposal Summary) to complete the summary spreadsheet. Your team will need to determine how to deal with variances in each scope. You must indicate how the under/overruns for each line item will affect the project's overall budget. When all values have been populated, your team can review the 'below the line' items.

PART B: Contingency

The initial bid contingency was 1.5% and was originally carried for incomplete design documents, buyout risks and general construction issues. At this juncture, your team needs to determine if this contingency value should be increased, decreased or remain the same. Keep in mind that altering this value will affect the bottom line and the Developer is looking to simply pass along this contract for the original proposed value.

You will need to populate your new proposed contingency percentage within the General Summary spreadsheet. In addition, a short narrative (single page maximum) explaining the potential risks that would be covered by this contingency shall be included.

PART C: Fee

The final item to review is our fee percentage. We included a 4.5% fee in our initial proposal. Some folks believe that this fee percentage was too high which in turn caused us to land second in the bid rankings. Others believe that the project risk was not worth the small fee percentage. We now have an opportunity to revisit this fee and make an adjustment.

Your team shall review the project budgets and determine if we should increase, decrease or keep our original proposed fee percentage. The new proposed fee percentage shall be populated in the General Summary spreadsheet included in Section X.1.1 which will finalize the total project cost. Another short narrative shall be submitted describing why the percentage shown is justified.

PART D: Final Recommendation

After all reconciliation tasks, review of the project pricing and compiling of the General Summary are complete, your team will need to determine what recommendation you will propose to upper management. Provide a written narrative that indicates whether your team feels we should accept this opportunity or if we should graciously decline. In either case, provide at minimum five reasons your team came to this conclusion.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

General Summary Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in native format (Excel) of your General Summary, with all information populated to indicate a complete project cost in the bottom line.
2. Submit one (1) hard copy and two (2) electronic copies of narrative for Part B.
3. Submit one (1) hard copy and two (2) electronic copies of narrative for Part C.
4. Submit one (1) hard copy and two (2) electronic copies of narrative for Part D.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

2. ESTIMATE

Written by Brendan Miller & Kyle Nelson

You are the Senior Estimator that oversaw the original bid submission for the project. After previously accepting the unfortunate news that Hensel Phelps hadn't been awarded the project, you've been assigned to a new estimating opportunity on an upcoming Phoenix Sky Harbor Airport project within the District.

The District Manager and Chief Estimator approached you with the news that the Developer had contacted Hensel Phelps again to see if we'd honor our original proposal submitted several months prior. As the Senior Estimator, you know that our competitive edge with the original proposal was heavily factored on Hensel Phelps self-performing the concrete scope on the project. We pride ourselves in our ability to undertake the most complex projects in the industry as a General Contractor; being able to self-perform our own concrete on the project not only allows for us to enhance profits, but it ensures us greater control over critical scope activities within the schedule and to set the pace of the job.

Since some work on-site has already been started by the developer, the concrete subcontractor is now one of the prescribed subs that the Developer has stipulated to utilize on the project. The Developer has provided you with their proposal for review, but when comparing it to your original concrete estimate and the latest permitted set of contract drawings, you've noticed some major design changes to the concrete scope. After discussing this issue with your Chief Estimator, you both agree that our original estimate should be redone to ensure that our concrete budget is sound when evaluating the concrete subcontractor's proposal.

PART A: Concrete Estimate

Use the provided Contract Drawings to quantify and estimate the following concrete elements for all levels of the building (Basement through Level 19, plus Low Roof and Penthouse Levels):

- Foundation Mat Slab
- Elevator Footings and Pit Walls
- Basement Walls
- Vertical Columns
- Horizontal Beams
- Shear Walls extending the full height of the building
- Post-Tensioned Elevated Slabs
- Concrete on Metal Deck (Level 19 Only)
- Equipment Pads shown on plans

In addition to the concrete estimate, you will also need to quantify, price, and estimate the formwork line items applicable to the components above, including the high bay shoring required in the lobby.

The supplemental information outlined below has been provided for your use in this task:

- Concrete Estimate Workbook Section X.2.1 (Part A tab) – This workbook is to be used to input your quantities from your takeoff and unit rate costs while developing your estimate.
- Local Ready-Mix Concrete Pricing Section X.2.2 – This resource is to be used for unit rates cost for material once quantities are determined.
- Hensel Phelps Subcontractor Unit Cost Rate sheet Section X.2.3 – This resource is to be used for unit rates cost for labor, and equipment once quantities are determined.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

- Tower Crane Cost Rate Sheet Section X.2.4 – This resource is to be used for unit rates associated with crane costs. Crane sizing selection to be coordinated with Site Utilization Plan Section X.10.1.A.

Clarifications and Exclusions:

- In order to keep all teams' estimates consistent, do NOT modify the Estimate Spreadsheet.
- Do not include additional material or labor to account for patching of exposed concrete walls.
- Do not include reinforcing bar in your estimate.
- Do not provide any other concrete components other than the items listed above.
- Round all quantities to near whole number
- The tower crane is included within the concrete subcontractor's scope, not the General Conditions section of the Hensel Phelps estimate.

PART B: Calculate the Formwork Labor Cost

In Part A, the Subcontractor Unit Cost Rate Sheet Section X.2.3 attachment did not have the 1-sided unit pricing per square foot provided for the Concrete Formwork Activities below:

- Walls/ Columns (8ft-16ft)
- Walls/Columns/Beams (16-20ft)
- Elevated Deck
- High Bay Decking and Shoring

Utilizing the quantities that you calculated in Part A, calculate the labor cost for these activities for each floor utilizing the Part B tab. Once calculated, carry the Labor Subtotal from Part B forward to populate the Labor Subtotal in your overall Concrete Estimate in Part A and calculate the missing square foot labor cost in Column G.

The supplemental information outlined below has been provided for your use in this task:

- Concrete Estimate Workbook Section X.2.1 (Part B tab) – This workbook is to be used to input your production rates and composite crew cost rates to calculate the missing activities from your concrete estimate.
- Concrete Formwork Labor Production Rates Section X.2.5 – This sheet will provide you with the necessary labor production rates and composite crew cost rates that you will need to complete Part B.

Estimate PART A Deliverable:

1. Submit (1) one hard copy and two (2) electronic copy in native format (Excel) of your completed concrete estimate spreadsheet including any additional assumptions made to complete this estimate.

Estimate PART B Deliverable:

1. Submit (1) one hard copy and two (2) electronic copy in native format (Excel) of your formwork labor production cost analysis.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

3. GENERAL CONDITIONS

Written by Jon Peltz

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.

Six months ago, the General Conditions were assembled by the estimating team for the competitive procurement effort. However, given the landscape of available staff and with the recent news that Hensel Phelps has been given another opportunity to decide whether to proceed or not, Upper Management has asked that you develop the GCs that you believe are required to complete the project through final completion to validate the prior GC estimate.

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 work and 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 is allowed up to 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 8.6%
- Permit Fees are carried by the Owner
- Contractor's Fee is not carried within the General Conditions, see General Summary in Section X.1.
- Bonding and Insurance Fees are not carried within the General Conditions, see General Summary in Section X.1.

PART A: Staffing Plan & General Conditions Estimate

Prepare a Staffing Plan and a detailed General Conditions estimate projecting all costs from Notice of Proceed 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.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

As you complete the Staffing Plan spreadsheet take note of your assumptions and justifications for staffing recommendations that you feel is abnormal or require justification. Grading will be based on logic and reasoning of your staffing recommendations. Any pertinent information to justify your matrix should be written in the assumptions and justifications section of the spreadsheet.

PART B: Project Engineer Staffing Recommendation

The District will have a considerable amount of personnel becoming available soon and this project will need Project Engineer(s). Below is a list of available Project Engineers coming available with some biographies included.

You have been asked to make a recommendation of which PE(s) you feel would be best for the project. Upper management has also asked that you make recommendations for the other potential PE's. You, as a Project Manager, must review and consider the project's staffing needs to what Project Engineers are becoming available. It is important to review and determine not only what is best for the Project, but you must keep in mind the Project Engineer's career and life goals.

Provide a short narrative analysis for each Project Engineer to review with upper management. Be sure to provide your thought process on your recommendation and a final recommendation for each Project Engineer using the list of options below. Assume no other Western District projects can support an additional Project Engineer at this time, however with some procurement opportunities coming down the pipeline the district may require a PE or two in the next 6-8 months. Lastly, be sure to account for your recommendation within Part A above.

Project Engineer Assignment Options:

- Utilize the PE in estimating (to assist procurement efforts)
- Staff this project
- Review (with the PE) a full-time district transfer
- Review (with the PE) a TDY (Temporary Duty Yonder Assignment) to assist another district for the next six-eight months. (Southern California, Northern California and the Mid-Atlantic District have all inquired about project engineers.)

Project Engineer A – Thomas Edison

Thomas is your go to Project Engineer. He has been on your project for the last year and a half as a PE and really commands the respect from his peers and Subcontractors. Not to mention, he has a knack for coming up with new ideas that have been implemented with great success. He was born and raised in Phoenix and has no intention of moving away. You've heard that Thomas is starting to get frustrated and is ready for a promotion to Area Superintendent. Although he is qualified, no AS opportunities are available in the District for another 6 months. He is available to start right away on this new project and would not require relocation.

Project Engineer B – Kate Nielson

Kate has just finished up her Office Engineer role spending two years mastering the role. She previously had mastered the Field Engineer role the first 18 months of her career. She worked hard and was very studious allowing her to advance quickly through the different roles, learning The Hensel Phelps Way. Kate was recruited from USC but moved to Phoenix where her fiancée had accepted a position in town. The project team she is currently on has taken notice of Kate's performance and has recommended her for a promotion. She currently lives nearby and would

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

not need to relocate. She has made it known to her supervisor that her family in Southern California has been having some tough times; however, she doesn't want to leave this district where her friends and fiancée currently reside.

Project Engineer C – Thao Wong

Thao is coming off a successful PE TDY assignment in Northern California. His TDY assignment is quickly coming to an end. Thao was born in San Francisco but was recruited out of Arizona State University. Last week when you spoke with Thao he mentioned he really enjoyed NorCal and would love to move closer to his family in San Francisco. NorCal is willing to relocate Thao due to his work ethic and success on the TDY assignment. One of the potential Project Superintendents for the Luhrs project was also on TDY on the same project as Thao. He is making a huge push to keep Thao on the Luhrs project since they really seemed to have good team chemistry. Thao is a great fit as he has enough experience to make him your office leader right away without a lot of oversight. He is ready and available to relocate back to Phoenix.

Project Engineer D – Samara Fingston

Samara was recently promoted and has been a PE now for 3 months. Her current team has said she is struggling to show up on time and stay focused on her role. After your recent conversation with her current manager you have learned that her boyfriend just recently moved away to Washington D.C. and she has been having a hard time adjusting to the long-distance relationship. On top of that, her beloved long-time family dog passed away last week. She is from the Baltimore area, but attended school at UCLA. Her family has been putting pressure on her to move back to the East Coast. Samara has been one of your top choices since you worked with her as a Field/Office Engineer a couple of years ago. You've been hoping that she would be the solid foundation upon which this project could rely on for a complete view from start to finish.

Project Engineer E – Peyton Manning

Peyton just finished up his second-round interviews at the District Office. You were on the interview team and learned a great deal about Mr. Manning. Peyton has four years of experience from working with a nearby general contractor. He commented that he was looking to change environments. He was very interested in Hensel Phelps since his best friend from college is working at the Skyport project and speaks very highly of the family culture. Peyton was very sharp in his interview and possess the skills we would expect from our Project Engineers. Your upper management also really liked Peyton and wants to bring him aboard. Peyton returns from vacation with his family in Omaha next month and would be available at that time.

General Conditions PART A Deliverables:

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

General Conditions PART B Project Engineer Staffing Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies in native format (PDF) of the PE staffing narrative as described above.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

4. PROPOSAL SUMMARY (TAB ANALYSIS)

Written by Mike Giron & Michael Mourey

This is your first Hard Bid construction project and the Project Manager has asked you and your team of Office Engineers to revalidate pricing of the Millwork, Building Specialties, Flooring and the Framing & Drywall scopes. When evaluating these proposals keep in mind that the proposal summary is the most important part of a bidding project.

This is the best time to capture a complete scope and select a quality subcontractor to perform the desired scopes. The tabular format allows you to compare between each subcontractor's proposal and account for each required contract requirement.

The Project Manager and the Senior Estimator in charge of procurement have created summary bid tabs with check questions to determine if the subcontractor has captured the entire scope per plans and specifications. The Scope Desired column has an assigned budget the estimator and project manager have filled in to illustrate what they feel is a complete scope and estimated value. Keep in mind that plugged numbers in this column are the estimator and project manager's educated guess of the scope value based on historical data and subcontractor values, they may vary from the actual proposals.

Review the proposals submitted by the subcontractors and chose your subcontractor wisely to ensure you have captured a complete scope instead of being deceived by the lowest bidder. It is encouraged that all teams round values to the nearest \$1,000 to allow for quick summation of the Tabs.

Remember: It is your job to compare complete scopes to determine the correct value to carry. If a subcontractor has not included a certain cost/scope use Blue Numbers (Plug Numbers). Blue Numbers are values derived by your estimating team or through breakout numbers provided by other subcontractors that did capture the scope and provided a breakout number. Red Numbers (Negative Plug Numbers) can be used for the opposite of a Blue Number that a sub included too much scope/cost and should be deducted from that subcontractor as that scope/cost would be on a different bid tab.

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 your interviews. Please note that this is intended to be a realistic exercise. Your subcontractors may be rude or evasive; this is not an attempt to frustrate the team, but rather to represent the very real difficulties encountered in real time buyout situations.

The following contract requirements must be considered:

- Company Policy requires bonding on all subcontractors with subcontract values over \$50,000.
- Arizona Transaction Privilege Tax is carried by the GC.
- Ownership has asked that all confirmed pricing be held for 90 days.

Proposal Summaries for Millwork, Building Specialties, Flooring, and Framing Drywall

Included in Section X.4.1 are the subcontractor proposals for each scope of work requested for review by your Project Manager and Senior Estimator. Carefully read through each proposal and

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

fill in the values for each line item on the Bid Tabs provided in Section X.4.2 using blue and red numbers where necessary to assure a complete scope. Once you have completed your review sum up the total value and select a subcontractor by circling the complete value for the required scope of work.

Proposal Summary Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in (Excel) of each proposal summary for Part A with selected subcontractors total value circled.
2. Submit one (1) hard copy and two (2) electronic copies with a brief narrative for each of the (3) scopes (500 or less words in total) explaining why the subcontractor for each scope was chosen.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

5. SCHEDULE

Written by Branden Laptalo & Ryan Perry

You have been asked to develop the CPM Schedule for the Luhrs Marriot project after the Owner has approached Hensel Phelps about taking on the project. 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 add the much-needed detail to ensure the project can be completed within the contractual duration. This will not only include detail for the construction activities, but the “preconstruction” activities as well.

Along with the award, the Owner has asked for us to begin immediately and finish by our originally planned completion date. This will mean that some construction activities and preconstruction activities will be running simultaneously.

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. 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 (OD), Early Start, Early Finish, and Total Float (see Figure “A” example below).:

Figure A:

Activity ID	Activity Name	OD	Early Start	Early Finish	Total Float
ASC Student Competition 2018 - Luhrs Marriot		0			0
+ Milestones		0			0
+ Preconstruction		0			0
- Construction		0			0

- ii. Activity count: No less than 500 and no more than 1,000 activities.
- iii. There should be a continuous logic flow of critical path activities from the Notice to Proceed through 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 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

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

area delineation, scope break out, etc.; however, you must keep the base WBS true to what has been provided by your Project Superintendent (see Figure “B” example below):

Figure B:

ASC Student Competition 2018 - Luhrs Marriot	
Milestones	
Preconstruction	
Permitting	
Buyout	
Submittals	
Procurement	
Construction	
Mobilization	
Site/Earthwork	
Building	
Commissioning	

The following (i. – iii.) is the base WBS provided by your Project Superintendent. There are Maximum Working Days (MWD) 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 Luhrs Marriot. 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 necessary and most importantly incorporate the activities required to show the full flow of work from start to finish.

- i. Milestones (Constrained Dates, except for “Permanent Power Available”)
 - a. Notice to Proceed (March 1st, 2018)
 - b. Interim Milestones
 - c. Substantial Completion (December 26th, 2019)
 - d. Final Completion (January 24th, 2020)
- ii. Preconstruction
 - a. Permitting
 - b. Buyout
 - c. Submittals
 - d. Procurement
- iii. Construction
 - a. Mobilization
 - b. Site/Earthwork
 - c. Building
 - 1) Basement
 - 2) Level 1
 - 3) Level 2
 - 4) Level 3
 - 5) Level 4
 - 6) Level 5
 - 7) Level 6
 - 8) Level 7
 - 9) Level 8
 - 10) Level 9
 - 11) Level 10
 - 12) Level 11
 - 13) Level 12
 - 14) Level 13

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

- 15) Level 14
- 16) Level 15
- 17) Level 16
- 18) Level 17
- 19) Level 18
- 20) Level 19
- 21) Level 20 - Penthouse
- 22) Level 21 - Machine Roof

- d. Elevators
- e. Commissioning

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 Arizona 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)	5	5	2	0	0	0	0	0	0	2	3	4

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. Permitting

- a. To obtain the required Building Permits to proceed further with construction activities, the City will need to review and approve the drawings. Utilize the following permitting activities within your schedule to account for this time (Assume 5 to 15 day duration as the drawings are established).

1) Permitting

- i. Construction Water Meter Permit

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

- ii. SWPPP Permit
- iii. Building Permit
- iv. Fire Line Service UG Permit
- v. Sewer Tap Permit
- vi. Domestic Water Line Permit
- vii. APS/Site Lighting UG Permit
- viii. SW Gas UG and Meter Permit

iv. Buyout and Scope Purchasing:

- a. Hensel Phelps will need to sign up subcontractors to perform various scopes of work. The Owner of the project has already selected most of the subcontractors, so it is Hensel Phelps' responsibility to ensure they have the scope covered and execute a contract.
- b. Assume the estimating department cannot buyout all scopes of work during the same time.
- c. Assume 10 working days to allow for Buyout scopes noted below. You may need to add additional scopes to facilitate any submittal requirements.
 - 1) Plumbing Subcontractor
 - 2) Elevator Subcontractor
 - 3) Concrete Subcontractor
 - 4) Glazing Subcontractor
 - 5) Electrical Subcontractor
 - 6) Mechanical Subcontractor
 - 7) Waterproofing Subcontractor
 - 8) Earthwork Subcontractor

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 25 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:
 - 1) Elevator Submittal
 - 2) Air Handling Unit(s) submittal
 - 3) Emergency Generator Submittal
 - 4) Chiller Submittal
 - 5) Boiler Submittal
 - 6) Doors, Frames and Hardware Submittal(s)
 - 7) Light Fixture Submittals
 - 8) Glazing Submittal
 - 9) Metal Stairs

vi. Material Procurement:

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

- 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) Elevators (50 WD)
 - 2) Air Handlers (50 WD)
 - 3) Chillers (50 WD)
 - 4) Boilers (50 WD)
 - 5) Metal Stairs (50 WD)
 - 6) Light Fixtures (40 WD)
 - 7) Door Hardware (50 WD)
 - 8) Doors and Frames (60)
 - 9) Bath Vanity Countertops (OFCL, 60WD)
 - 10) Carpet (OFCL, 100 WD)
 - 11) Beds and Headboards (OFOI, 50 WD)
 - 12) Desk Chair (OFOI, 50 WD)

Notes: Material Procurement activities cannot begin until its associated Buyout and Submittal activities have been completed. Please note that Owner Furnish Contractor Install (OFCL), and Owner Furnish Owner Install (OFOI) activities need to be incorporated into the schedule and that their arrival onsite and installation may affect other work scheduled after it. It is the contractor's job to ensure the owner delivers and installs their material on time, however, the owner may not be able to meet these needs and in turn causes coordination issues.

- vii. Commissioning:
 - a. Include commissioning activities for the following systems:
 - 1) Electrical / Lighting
 - 2) Mechanical Equipment
 - 3) Emergency Generator
 - b. Activities to assist in the Equipment Testing & Commissioning schedule buildout:
 - 1) Final Equipment Connections/Terminations
 - 2) Startup Equipment
 - 3) Test and Balance Air
 - 4) Set/Install Equipment
 - 5) Owner Functional Testing & Sign-Off
 - 6) Fire Marshal Testing & Inspection
 - 7) Energize Equipment
 - 8) Program System
 - 9) Pre-functional Testing
 - 10) Fire Marshal Final Inspection & Sign-off
 - 11) Equipment & Installation Code Inspections

Notes: Not all activities listed apply to all systems and they are not in sequence order. As the 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.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

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

Figure D:

Commissioning		42
Electrical and Lighting		20
COM - ELEC - 1000	Final Equipment Connections and Terminations	5
COM - ELEC - 1010	Program System	5
COM - ELEC - 1020	Prefunctional Testing	5
COM - ELEC - 1030	Owner Functional Testing and Sign-Off	5

- d. General schedule buildout and activity notes for assistance:
 - i. Material Installation:
 - a. When determining hotel guest room finishes, assume all OFCI and OFOI material will be arriving onsite and installed (if applicable) on time.
 - ii. Punch List
 - a. You can't punch all floors at the same time.
 - b. Before you can punch a space, you need to ensure you complete your "Work to Complete" and "Initial Clean" activities.
 - c. You always need a final punch list back check walk, typically after substantial completion.
 - d. You can't punch a space without the permanent lights on.
- e. Schedule Focus Item Questions:
 - i. What predecessor(s) dictate when the permanent power can go live and what date can that happen?
 - ii. What is the earliest date that you can set the Chillers and Boilers?
 - iii. Write a brief explanation describing the critical path and why these activities establish that critical path?
 - iv. When will the building be dried in?

Schedule PART 1 Deliverables:

- 1) Submit the Full Baseline CPM Schedule in Native File Format (i.e. XER file).
- 2) 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.
 - 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.
- 3) Submit one (1) hard copy and two (2) electronic copies (pdf) of the responses to the Schedule Focus Item Questions.

PART 2:

SIPS:

A Short Interval Production Schedule (SIPs) is a powerful scheduling tool used to plan and execute repetitive construction activities to help maintain flow throughout a repetitive sequence. Additionally, it assists the team in breaking down an overall very complex project into much smaller graspable tasks, as well as serving as a one-page graphic tool to communicate to subcontractors and Owners where trades should be at any given point in time.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

PART 2A:

(TIME WARP TO PRE-CONSTRUCTION)

Hensel Phelps has been awarded the project based on the commitment and plan Hensel Phelps has drafted, reviewed, and submitted to the Owner. Now the time has come to begin further developing the plan for building out the hotel tower. As described above, the SIPs are an essential tool to establishing a smooth flow throughout the construction of the tower. As an Area Superintendent, your Project Superintendent has tasked you with developing the initial SIPs schedule for the hotel to ensure the project schedule has smooth flow throughout the tower construction (hotel floors only) and utilize the tool to effectively communicate the schedule to the subcontractors. Based on your previous project experience and resources around you, you have created a rough template of the SIPs in Section X.5.2 – SIPs Exhibit. Utilize the template to finalize your SIPs schedule to present to the Project Superintendent for review of job flow and compliance with the original CPM schedule. Please note this activity is isolated from Part 1 of this problem statement due to the time warp.

Please note the following critical dates and items:

- August 27th is the first week of SIPs activities. The first activity is the installation of 50% reshores on level 5 (or removal of half of the existing reshores). If reshores is a new topic to you, feel free to google the topic as it is essential for high-rises and maintaining schedule.
- You are forming and reinforcing level 8 at the initiation of implementing your SIPs as it will kick off the repetitive sequencing of form, pour, reshore, removal of reshores. Pouring level 8 begins in the 2nd week of the SIPs. Hint: You should be forming the level above the week after you place concrete as shoring allows you to safely form above without waiting the full cure time of the concrete.
- Due to job planning, interior wall layout must have flow through the building. You cannot mobilize the layout crew and ask them to demobilize. Hint: Wall layout should begin 1 week after stripping 100% shoring on level 19.
- Pay close attention to the durations, activity names, and logic in Section X.5.3. After reviewing the list of activities with your Project Superintendent, you are both confident that all activities are shown and no further activities need to be added. After consulting with your trade partner resources, you are also confident in the durations listed. Create the SIPs to visually see the flow of the job for final recommendation by the Project Superintendent.
- Note: Activity numbers do not signify sequence. Refer to the logic provided.

Additionally, answer the following questions regarding your finalized SIPs:

1. What is the total duration (in weeks) of the Drywaller/Framers Activities
2. Based on the number of suites on levels 10-19, determine how many suites the flooring contractor must finish each day to remain on track to finish their work per the SIPs.
3. If each floor requires roughly 1,750 linear feet (levels 10-19) of framing (track and vertical studs) and a typical framing production rate is 100 linear feet/day/carpenter (without layout complete and vertical framing only), what is the minimum number of framers you should see on the floor during their portion of the SIPs?
4. What is the TCO date for the final floor? How does this compare to the final TCO date for the overall project per Part 1 of the CPM?

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

Schedule PART 2A Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies (.xls) of your finalized SIPs template for review by the Project Superintendent.
2. Submit one (1) hard copy and two (2) electronic copies (pdf) of the responses to the SIPs follow up questions.

PART 2B:

(TIME WARP TO CONSTRUCTION – SHOP DRAWING SUBMISSION OF EXTERIOR FACADE)

There has been extensive work to address exterior closure design issues and the current SIPs plan you developed needs to be modified to not only address this item for trade coordination, but to also document the time it took to address this issue.

Background: Beginning on level 9, the design shifts from Courtyard Marriot (Levels 5-9) to Residence Inn (Levels 10+), and there are design issues preventing you from closing the exterior skin, per the original SIPs. You can install the windows per your original SIPs plan but making the exterior skin water tight and finishing the walls butting up to the windows cannot proceed until this issue is resolved (Activity R2). Through extensive work with the design team, Owner, and trade partners, a solution was developed and documented via Request for Information (RFI). The adjustment of the SIPs, must now be sent out and the time it took must be documented accurately.

Utilize the following facts to reissue your SIPs as Part 2B submission:

1. Delay is seven (7) weeks on level 5 while the issue is resolved. Delay on levels 6 and up are four (4) weeks as the team worked hard to resolve the issue as quickly as possible to minimize the impact on the entire project.

Schedule PART 2B Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies (.xls) of your completed answer sheet.
2. Answer the following question on your SIPs: What is the revised final TCO date for the final floor?

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

6. COORDINATION OF WORK

Written by Maria Martinez

PART A: Coordination of concrete placements

(Time warp to concrete placement phase. Consider this section independent of other sections)

You are the field engineer responsible for placing the concrete slab for Levels 1-6. One of the checks that must be done prior to placing concrete is ensuring that the top of floor sinks and floor drains are at the correct elevation. You understand you need to consider the buildup of the finish floor material and the percentage of sloping required at the drains per the drawings. In order to check your Level 2 floor sink and floor drain elevations, you plan to mark up the Level 2 Plumbing Plan with the required elevation of each floor drain and sink.

1. Utilizing the floor finish plan, plumbing drawings, and specifications, make a note next to each sink and drain shown on Section X.6.1.1 indicating the required elevation of the top of the drain relative to the Level 2 concrete slab elevation. (For example, noting + ½" would mean the elevation of the top of the drain is ½" above the Level 2 top of concrete slab).

As you are preparing for your Level 2 placement, you realize you need to provide the concrete subcontractor a floor plan illustrating the different types of finishes required so they'll know how to finish the concrete.

2. Utilizing the floor finish plan and the specification, mark up Section X.6.1.2 depicting the types of concrete finishes required so that the concrete crew can finish the concrete appropriately. If a dimension is required to more clearly indicate the extent of the finish, please provide a dimension from Gridline 1, 7, K or D, (whichever gridline is closest).

PART B:

(Time warp to Interior Buildout Phase, wall close-in phase of the food service equipment. Consider this section independent of other sections.)

You are the field engineer on the project who is responsible for completing wall close-in inspections prior to hanging drywall. You are also the field engineer who will be responsible for helping the area superintendent coordinate the installation of the food service equipment. This is owner-furnished, owner-installed (OFOI) equipment.

To better prepare for the wall close-in process and the questions that will come from the different contractors regarding the plumbing, electrical and framing systems, you plan to create a lift drawing for each wall that is to receive equipment. Your lift drawing will be an elevation view of the wall that depicts the plumbing pipes, electrical boxes, and backing requirements for each piece of equipment. In order to create that, you must review the architectural, plumbing, electrical, and food service equipment drawings, as well as product data for the equipment. To help you get started, your superintendent has asked that you prepare a lift drawing for just one of the walls in the Level 2 Kitchen Room 205 so that you can review with him, prior to continuing with the rest. Please note, the Owner has recently confirmed the layout depicted in the food service equipment plan views (FS&L). Any requirements listed by the equipment manufacturers will supersede the balance of the contract drawings as some equipment changes may have occurred and have not been incorporated into the rest of the contract drawings.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

1. Using the drawing provides and the Product Data in Section X.6.2.2, draw an elevation view of the highlighted wall (Kitchen side) on Section X.6.2.1 that depicts the electrical outlets, plumbing connections, and backing required for all items (equipment or not) to be placed against that wall. Provide all necessary dimensions and annotations to portray the information clearly and effectively so that you can later ensure all the correct rough-in and backing is installed. Please provide each dimension from the closest end of wall. If there is a range of dimensions that work for a specific item, please make a note of that.

Coordination of Work PART A Deliverables:

1. Submit one (1) 11" x 17" hard copy and two (2) electronic copies (pdf) of Section X.6.1.1 depicting elevations of top of floor drains and floor sinks on Level 2.
2. Submit one (1) 11" x 17" hard copy and two (2) electronic copies (pdf) of Section X.6.1.2 depicting types of concrete finishes on Level 2.

Coordination of Work PART B Deliverable:

1. Submit one (1) 11" x 17" hard copy and two (2) electronic copies (pdf) of Section X.6.2.1 depicting the proper Food Service Equipment Lift Drawing.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

7. CHANGE MANAGEMENT

Written by Eric Freedman

(Time Warp to Structural Phase)

Your team has accepted the contract for the Luhrs Marriott project and is now in the midst of the structural phase of work. The project team has successfully brought the building out of the ground and the concrete crews are currently working on the fifth floor deck of the structure. The first four levels of the structure were placed efficiently and on time. However, the team has received multiple noise complaints from neighbors who live adjacent to the building. The Owner has a strong working relationship with the community and it is imperative that this relationship is maintained. The Owner has challenged Hensel Phelps, via Field Order, to come up with a method of placing concrete to limit the noise complaints. Hensel Phelps has proposed to change placement methods from concrete pumps to tower crane and bucket. The Owner agrees this is the best method to proceed and has stated there is merit for the subcontractors to submit additional cost for the change in placement method. As a Project Engineer one of your main responsibilities is to gather and package pricing for Owner directed changes. Please provide the following:

PART A: Request for Pricing

Create a notification letter that will be sent to subcontractors affected by the Field Order directive. Request cost and schedule impacts, if any, on X.7.1. Be sure the letter is clear and concise, so the subcontractors understand what is being requested from them and set a deadline as to when you expect the impacts to be submitted in return. Fairness is a virtue that Hensel Phelps believes in and upholds for both the Owner and Subcontractors. It is up to you to ensure Subcontractors are only pricing the portion of this change that is deemed 'outside' of their original subcontract scope requirements and that they provide any credits for work previously required in their contract which may no longer be required.

PART B: Assembling the Change Estimate

Create an Owner Change Estimate using the spreadsheet provided in Section X.7.2. Please consider the following and note you may change the cells to conform to the requirements listed below, but be cautious when doing so:

- Review the proposals that have been provided in Section X.7.3, X.7.4 and X.7.5, X.7.6 and X.7.7.
- After reviewing each proposal, make any corrections to the excel sheets (if needed) and input the subcontractor's final costs into the "Subcontractor" tab on Section X.7.2.
 - o The scope provided by the subcontractor conforms to the project's needs, adjustment to their scope definition is not needed.
 - o Use the Approved Wage Rate Sheet provided in X.7.8 to verify the correct labor rate is applied in each proposal.
 - o Hensel Phelps will have additional labor needed to facilitate this change:
 - Allowable Hensel Phelps Mark Up's on Self Performed Change Orders:
 - Sales Tax on Material : 8.6%
 - Overhead and Profit : 15%
 - Bonds and Insurance : 1.1%
 - o Allowable Subcontractor Mark Up's on Subcontractors Change Orders:
 - Sales Tax on Materials : 8.6%
 - Overhead and Profit : 15%
 - Bonds and Insurance : 2%

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

- For Owner Change Orders, contractor's fee is applied to Direct Costs, Bonds and Insurance.
- Cost of Work – Contractor Bonds and Insurance is 1.1%
- Hensel Phelps allowable Contractor's Fee on change orders is 5%.

After populating the "Subcontractors" worksheet with the final costs of the subcontractors, complete the "Summary" worksheet to finalize the cost for the Change Estimate that will be submitted to the Owner for execution.

PART C: Tracking Changes to Subcontractors Proposals

You have completed gathering and reviewing the proposals from your subcontractors and mentioned to your Project Manager that there were multiple errors that you caught and had to correct before submitting to the Owner. Your Project Manager has requested that you email her a list of bullet points of errors you caught for each of the subcontractors, so she can have an internal discussion with the subcontractors at the next executive meeting. Keep your findings to an executive summary level and provide them on X.7.9.

Change Management PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of the request for pricing letter to the subcontractors.

Change Management PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of the native format (Excel) of the Owner Change Estimate.

Change Management PART C Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of the email to your Project Manager listing the Changes to Subcontractors Proposals.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

8. PERSONNEL ISSUES

Written by Tedd Mason

PART A: Fresh College Grad Still Living the College Life

(Time Warp)

You are the Area Superintendent responsible for the concrete pours on the project. You have just been assigned a new “red hat” or new-hire Field Engineer named Dylan who happens to be an Arizona native and attended a local Arizona University. After meeting Dylan, you sit down with him and let him know that all concrete pours will take place at night; therefore, he will be working with you on the night shift and work from 10PM to 6AM.

Over the next few months you are faced with these three scenarios:

1. You notice that Dylan is starting to make it a habit to show up late to work on Thursday evenings. One night upon arriving to the site you notice the project gates are still closed and the trades are waiting to start their shift. You are greeted by an upset Foreman, and it appears that he and his men have been waiting over an hour for Dylan to show up. Not long thereafter, Dylan arrives and says that he was just hanging out on the other side of town with friends and didn’t think it was a big deal if he was a little late.
2. One day while speaking with a project inspector he mentions that he walked in on Dylan sleeping in one of the rooms of the project. Upon hearing this you pull Dylan aside where you learn that he has been going and hanging out with his friends during the days, which is leaving him sleep deprived for his night shift. You inform him that this is not responsible, nor is it acceptable behavior.
3. Dylan fails to show up for his shift entirely with no warning and does not answer when you give him a call. He shows up later without giving you so much as a phone call and says he had a “medical issue”. You later find out that Dylan took a trip to Vegas through posts on social media.

After reviewing the scenarios above, put together a brief explanation (minimum of 1 paragraph each) on how you would approach each of these situations. Keep in mind that although Dylan has not shown the maturity you would expect, but you believe he shows potential for being a high performer in the future.

When writing your approach to each situation make sure that you have considered the following:

- Have you identified the root cause of the problem?
- Have you clearly outlined your expectations?
- Are there measurable goals for improvement?
- How would you strike a work / life balance?

PART B: New Construction on an Old Skyline

Unlike many other major metropolitan areas where tower cranes are a common sight, downtown Phoenix hasn’t seen construction like this in years. This means that, along with making significant changes to the Phoenix skyline, Hensel Phelps is also on the forefront of a paradigm shift. This new era will mean that Hensel Phelps will be the first of many future construction projects in the downtown Phoenix area. As such we will be setting the standard for all future construction projects.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

As with all new things, change is not always welcomed. With the hustle and bustle of the project primarily taking place at night (i.e. material deliveries, concrete pours, and work being put in place), Hensel Phelps has started to receive complaints about the noise, traffic, and light being generated. Directly across the street from the project is a residential high rise and many of the tenants are not accustomed to living in such close proximity to an active construction site.

At Hensel Phelps, we pride ourselves on being able to establish positive relationships with the communities in which we work. As the Hensel Phelps Project Manager for the Luhrs Marriott project, put together a PowerPoint presentation for the surrounding community that will address the following concerns they have expressed:

- Noise Mitigation Measures
- Traffic Congestion
- Project Deliveries
- Street / Sidewalk Closures
- Light Pollution

PowerPoint Guidelines:

- Must be 10 slides or less.
- Must include a project organization chart.
- Must include a brief project outline / description
- Must include a brief schedule overview
- Must address all 5 concerns expressed by the community.
- Must include a minimum of 3 visual elements (photos, schedule snapshots, etc.)

Personnel PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies in native format of your (3) three responses the scenarios.

Personnel PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of your PowerPoint presentation.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

9. SAFETY

Written by Alexa Watanabe

(Time warp to start of exterior scaffolding erection)

PART A: Safety Stand Down Week

Safety Week is an annual construction industry-wide education awareness event which is held in alliance with the Occupational Safety and Health Administration's (OSHA) National Safety Stand Down, an initiative focusing on fall protection. During this stand down, each Hensel Phelps project places additional emphasis on safety throughout the week – which reminds our people, trade partners, and other stakeholders of our commitment that no job is so important that it cannot be performed the safe way.

The Luhrs Marriott project is preparing for Safety Stand Down Week, which will fall at the beginning of exterior scaffolding erection. As an Area Superintendent on the project, you have been tasked with developing an agenda for Safety Week. The agenda should provide an overview of any special activities that will be conducted as well as site-specific topics to be discussed at the daily morning meetings. Reference the schedule to determine which topics should be discussed based on work being put in place; do not restrict topics only to fall protection. For each morning meeting, list key points to be discussed for each topic in the agenda.

PART B: Opportunities for Improvement

Hensel Phelps prides itself on being a workplace that promotes innovation in safety, quality, cost savings, and productivity. New ideas that are implemented and proven to benefit these areas are submitted as 'Opportunities for Improvement' (OFI's) and spread to Hensel Phelps jobs across the country through a Continuous Improvement Program so that other projects can learn and benefit from these ideas. It is this culture that gives you the idea to create a plan that rewards trade partners for being proactive with safety and striving to work without accidents or near-misses.

Safety is the responsibility of everyone on the jobsite – not just the Safety Engineer's or the Project Superintendent's. Now that the project is at the peak of its manpower count, you feel like there is no better time than the present to implement a reward program that will encourage trade partners to get involved with safety and recognize those that work safely.

Complete the OFI form provided in attachment X.9.1 for your plan to be presented to your Project Superintendent. If approved, the program will be unveiled during the Safety Stand Down Week referenced in Part A. Remember – if your plan is implemented successfully on your job, you will have the opportunity to submit it as an OFI to be utilized on all Hensel Phelps projects and gain recognition in the company.

Safety PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of Part A Deliverable: Safety Week Agenda

Safety PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of Part B Deliverable: OFI Form

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

10. SITE UTILIZATION

Written by Cody Kemper and Gregg Stoneham

With this project being restricted to a very small footprint within a busy downtown area, having an accurate and flexible site utilization plan is key to the success of the project. When creating a site utilization plan it is critical to consider the flow of material, vehicles and personnel through the project site.

The City of Phoenix has approved the following lane closures during construction;

- E Madison St: the west bound lane from S. Central Ave. to the western extent of the project site.
- S Central Ave: the western north bound lane from E Madison St. to the northern extent of the project site.

It has also been noted by the City of Phoenix that there is no offloading of material allowed outside of the project's site fencing.

Section X.10.1.A provides a preliminary site utilization plan depicting the following:

1. Tower crane location and swing radius
2. Dual material hoist location and loading dock
3. Site fencing and gates

PART A: Coordination Efforts

(Time warp to project mid-point)

The concrete structure has reached level 17 and placements remain on schedule via crane and bucket. With extensive construction activities happening, tower crane usage, material hoist usage, site deliveries and site laydown areas are coordinated weekly with the project foremen.

Exterior finishes have begun on the lower floors and scaffolding has been constructed around the entire perimeter of the building up to level 10. Building access at ground level is limited to "tunnels" built through the scaffolding at each of the two future building entrances on the east side. The material hoist access is currently available up to level 14. During concrete placements, the crane operator must have line of sight to the concrete bucket while it's being filled by trucks.

The following items need to be considered during weekly coordination and included on your site utilization plan for each day;

- Bathroom facilities are required but can be relocated week to week (8 porta-johns and 2 hand wash stations on site)
- A single 40-yard dumpster is needed but can be relocated once a week (note that most waste will be coming from the guest room floors)

The following items must be coordinated for next week. The activities listed below need to be accounted for each day but are not in any specific order.

Monday:

1. The concrete subcontractor will complete the level 17 deck placement on Saturday. The shear wall forms will be stored on the ground. (See Section X.10.1.B for shear wall form sizes)
2. The mechanical subcontractor needs to deliver duct work to the 5th and 6th floor. This will take 1.5 hours.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

3. The steel subcontractor needs to deliver metal stairs and elevator steel to the 17th floor. This delivery will be on a flatbed truck and will take 4 hours.
4. The rebar subcontractor needs to be prefabricating complete shear wall cages for each level 17 wall on the ground. They will be complete with half of them by the end of the day and these cages can be stacked.
5. The drywall subcontractor needs to deliver material to the 8th floor. This will take 2 hours.
6. The exterior skin subcontractor needs space for storage of EIFS material and equipment for use every day this week. (6 pallets of material are needed for the week)

Tuesday:

1. The plumbing subcontractor needs to deliver shower pans to the 5th floor. This material comes on a box truck and will take 3 hours to unload.
2. The rebar subcontractor will continue prefabricating shear wall cages on the ground and will complete all prefabrication by the end of the day. Cages can be stacked 5 high.
3. A four-story stair tower needs to be erected at Stair 3's future location. The scaffolding subcontractor will deliver this material today and it will be offloaded/stored onsite while the stair tower is erected within the building. Offloading of the truck will take 2 hours with the crane or 4 hours by hand and will require 400 sq. ft. of site space.
4. The concrete subcontractor has a column placement today on level 17, requiring access for concrete trucks and the concrete bucket. This placement will take 4 hours.
5. The mechanical subcontractor needs to deliver mechanical piping to the 8th floor. This will take 2 hours.

Wednesday:

1. The pool subcontractor will have a shotcrete placement on level 4 which will require 500 sq. ft. of space for their trucks and pump on site for the duration of the placement. This placement will take 3.5 hours.
2. The drywall subcontractor needs to deliver material to the 9th floor. This will take 3 hours.
3. Half of the shear wall forms and rebar cages need to be set by the end of the day. This process will take 4.5 hours.
4. The mechanical subcontractor needs to bring material to site and begin prefabricating large diameter chilled water and heating hot water piping. They will require a 70'x20' site laydown space.
5. The north face of the exterior scaffolding system needs to be extended up the building. The exterior skin subcontractor will have another delivery of scaffolding and needs room for laydown. Once delivered the erection of this scaffolding will take 2 days. They will require 350 sq. ft. of laydown space.
6. The electrical subcontractor needs to deliver bus duct to the 6th floor. This will take 1 hour.
7. The stair tower at Stair 3 will be fully erected at the end of the day.

Thursday:

1. The doors and hardware subcontractor will be delivering material to the 5th floor. This will take 2 hours.
2. The remainder of the shear wall forms and rebar cages need to be set by the end of the day. This process will take 3 hours.
3. The plumbers will bring material to site to begin prefabricating racks of plumbing piping. They will require a 65'x30' laydown area.
4. The column formwork will be stripped and stored on the ground. This will take 2 hours. This material will occupy 800 sq. ft. of site space.
5. The mechanical subcontractor will complete the prefabrication of the chilled water and heating hot water piping and will lower them into place within the shafts. This will take 4 hours.

Friday:

1. The plumbing subcontractor will complete prefabrication of the piping racks in the afternoon and will lower them into place within the shafts afterwards. This will take 4 hours.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

2. Rebar for next week's prefabrication is to be delivered on a flatbed truck and stored in bundles on the ground. Unloading of this material will take 1 hour and occupy 150 sq. ft. of site space.
3. The concrete subcontractor has a shear wall placement today on level 17, requiring access for concrete trucks and the concrete bucket. This placement will take 5 hours.

Part A: Daily Site Utilization

Using Section X.10.1.A, develop a separate site utilization plan for **each day** of the week listed above. Your plans need to visually represent the space allocated to each subcontractor's requirements.

PART B: Site, Hoist and Crane Usage Schedule

Being able to communicate an agreed upon plan is a key to successful construction management. Through coordinating the week's work outlined above, develop a schedule (in any format) that effectively communicates usage of the project site, material hoist, and tower crane. Typical daily work hours are from 6:00am to 2:30pm. Your schedule needs to show times during each day that the subcontractors will require use of the site, hoist, and/or crane. The schedule also needs to visually identify whether the crane/hoist are to be used beyond typical work hours.

Site Utilization PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copy of your Site Utilization Plan for each day of the week.

Site Utilization PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of your plan for communicating daily time requirements.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

11. QUALITY CONTROL

Written by Lexi Taylor

Hensel Phelps prides ourselves on being able to identify and neutralize potential project risks; and therefore, performs due diligence prior to stepping foot on a jobsite in order to ensure a successful project. For this project, the Owner has stipulated the Mechanical, Electrical and Plumbing (MEP) trade subcontractors and has provided Hensel Phelps with each of their respective scope proposals (reference Section X.11.1). Hensel Phelps was not part of the initial purchasing meetings or discussions for these trades, as they were preselected solely through the Owner. Therefore, it is critical to perform a thorough review and identify any potential risks or gaps in scope. This review is critical as it will determine whether Hensel Phelps proceeds with accepting the project for the original proposed bid and/or if additional contingency allowances are necessary. To accomplish this, buyout reviews and purchasing meetings are performed to identify outstanding scope gaps between main trades. To guide the office team on contract reviews, a checklist has been created based on the “lessons learned” for other projects.

You are the Project Engineer responsible for performing the scope analysis of the mechanical, electrical and plumbing for the project. Your Project Manager has tasked you with performing this analysis utilizing a Scope Coordination Matrix to ensure that no scope gaps exist amongst the subcontractors. A copy of the matrix has been provided within Section X.11.2.

PART A: Scope Coordination Matrix

Review the subcontracts provided within Section X.11.1 and complete the Scope Coordination Matrix for the MEP subcontractors.

PART B: Narrative to Upper Management

You are now the Project Manager analyzing the completed Scope Coordination Matrix provided by your Project Engineer. Write an e-mail to upper management outlining whether you will suggest absorbing the added cost (with contingency), request additional funding from the Owner, or possibly recommend Hensel Phelps does not accept the project award. Note, all scope gaps should be treated as one consolidated package and either sought for reimbursement or absorbed. For all scope gaps between the MEP trades that have a monetary impact, utilize the following valuations based on the level of risk associated:

- Low Risk/Low Difficulty..... \$5,000
- Medium Risk/Medium Difficulty..... \$25,000
- High Risk/High Difficulty..... \$75,000

Update with more info to develop level of risk.

Quality Control PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of PART A: Scope Coordination Matrix.

Quality Control PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of PART B: E-mail to Upper Management (no more than 1 paragraph).

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

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 7 – Commercial Building Division
February 8-10, 2018

VII. COMPETITION SCORING SYSTEM

Item	Description	POINTS
0.1	Early Deliverable - Biographies	0 (note 1)
0.2	Quality of Submitted Proposal	2
0.3	Timeliness of Proposal	0 (note 2)
1.	General Summary Report	6
2.	Estimate	16
3.	General Conditions	10
4.	Proposal Summary	14
5.	Schedule	20
6.	Coordination of Work	12
7.	Change Management	6
8.	Personnel Issues	6
9.	Safety	8
10.	Site Utilization	12
11.	Quality Control	8
Subtotal		120
Oral Presentation		<u>80</u>
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 7 – Commercial Building Division
February 8-10, 2018**

VIII. LIST OF JUDGES

Oral Presentation Judges:

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

Ed Gomez, Project Manager
(480) 383-8480
EGomez@henselphelps.com

Gregg Stoneham, Area Superintendent
(480) 383-8480
GStoneham@henselphelps.com

Kyle Nelson, Project Engineer
(480) 383-8480
KNelson@henselphelps.com

Lexi Taylor, Project Engineer
(949) 852-0111
ATaylor@henselphelps.com

Ryan Perry, Project Engineer
(425) 646-2660
rperry@henselphelps.com

Alternates:

Brendan Miller, Project Engineer
(480) 383-8480
BJMiller2@henselphelps.com

Administrator / Executive Judge:

Ryan Piper, Operations Manager
(425) 646-2660
rcpiper@henselphelps.com

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

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

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

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

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

Pacific Northwest Area Office
15375 SE 30th Place, Ste 110
Bellevue, WA 98007

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

Pacific Northwest Area Office
15375 SE 30th Place, Ste 110
Bellevue, WA 98007

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

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 One (1) hard copy and two (2) electronic copies of the proposal must be turned into the judges. Two (2) thumb drives will be provided at the start of the competition for your use. Your final submission must be submitted on the provided thumb drives. 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. Some proposals may be available for students to re-claim at the conclusion of the competition, but may have marks from the grading effort in certain sections.

Rule No. 2 The equipment usage for each 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 Thursday only. Wireless access coupons will be distributed at the opening conference. 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. 3 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. 4 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. 5 A one-half (½) point deduction will be taken for each minute the proposal is turned in past the time it is due. Written proposals are due Friday at 12:00AM (Midnight Thursday night). Location of proposal delivery will be announced at opening conference. Other deliverable items, if applicable, will be due as specified elsewhere herein.

Rule No. 6 Oral interviews will begin at 7:00 AM on Friday, February 9th. 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 Hensel Phelps provided presentation computer; this will save on set-up time. Hensel Phelps' computer will utilize Microsoft Office 2013 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.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018

Rule No. 7 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. 8 Due to the sensitive nature of disclosing project information that the Owner and / or design professionals may not wish to be publicly distributed, Hensel Phelps reserves the right to require Confidentially Agreements be signed by each team member prior to distribution of the Problem Statement. This may further require that all or some Contract Documents or other material provided to the team, both electronically and hard copy, be returned to Hensel Phelps at the conclusion of the competition.

Rule No. 9 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 refrain from including 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. These Rules are subject to change; and, the final version will be included in the Problem Statement distributed at the opening conference.

**Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 8-10, 2018**

X. SUPPLEMENTAL INFORMATION

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

	Drawings & Specs
	01 – Architectural
	02 – Interior Design
	03 – Structural
	04 – Plumbing
	05 – Electrical
	Specs Vol 1 – Div. 01 – Div. 09
	Specs Vol 2 – Div. 10 – Div. 33
X.0.3	Request for Information Form
X.0.4	Evaluation Form
X.1.1	General Summary
X.2.1	Concrete Estimate
X.2.2	Local Ready Mix Concrete Pricing
X.2.3	Historical Cost Data Sheet
X.2.4	Tower Crane Cost Rate Sheet
X.2.5	Concrete Formwork Labor Production Rates
X.3.1	Company Historical Rates
X.3.2	Staffing Matrix Template
X.3.3	GC Template
X.4.1	Subcontractor Proposals
X.4.2	Bid Tabs
X.5.2	SIPs Exhibit
X.5.3	SIPs Exhibit – Activities and Durations
X.6.1.1	Plumbing Drain Elevations
X.6.1.2	Concrete Finish Plan
X.6.2.1	Food Service Equipment Wall
X.6.2.2	Product Data
X.7.1	Pricing Letter
X.7.2	Change Estimate
X.7.3	Stand It Tall
X.7.4	Arnold S. Structural Engineering
X.7.5	Matrix
X.7.6	Hensel Phelps
X.7.7	Cola Concrete
X.7.8	Lurh Marriott Labor Rates
X.7.9	Tracking Changes to Proposals
X.9.1	OFI Form
X.10.1.A	Site Utilization Plan
X.10.1.B	Shear Wall Formwork Shop Drawings
X.11.1	MEP Subcontracts
X.11.2	MEPT Scope Coordination Matrix Template