Estimating Today

October 2017

The War Room

Importance of Mentorship

ASPE
Board of Directors 2017-2018

President
Marcene N. Taylor, CPE
mtaylor@mticost.com

First Vice President
Bruce E. Schlesier, CPE
bruce_schlesier@msn.com

Second Vice President
Mel D. Cowen, CPE
melcowen2590@att.net

Northwest Governor
Kris A. Larson, CPE
klarson@cccutah.com

Southwest Governor
Larry Hendrick, CPE
lhendr6899@aol.com

Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Southeast Governor
Chuck Hesselbein, CPE
chesselbein@baldwinshell.com

Northeast Governor
Greg Williamson, CPE
gwilliamson@bondbrothers.com

Immediate Past President
Doyle T. Phillips, FCPE
doyle.phillips@nabholz.com

Treasurer (Appointed)
Chris Morton, FCPE
cmortoncpe@comcast.net

CONTENTS

Contact Us

Society Business Office

American Society of Professional Estimators
2525 Perimeter Place Drive, Suite 103
Nashville, TN 37214
615.316.9200
www.aspenational.org

Elaine Cersosimo
ECersosimo@ASPEnational.org
Operations
Annual Summit

Tina Cooke
Tina@ASPEnational.org
Standards Committee
Publications / Website

Jennifer Cochran
Jennifer@ASPEnational.org
Membership / Social Media
Online Classes / PIE Exam

Natasha Crumbliss
Natasha@ASPEnational.org
Education Committee
Annual Summit

ASPE National President

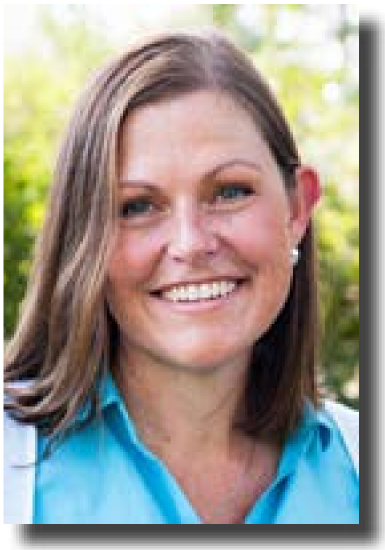
We all know that it is important to set goals. Setting goals allows us to develop long-term vision as well as to focus on short-term tasks. Goals maintain our focus and help to prioritize our time and resources. ASPE has gone through many transformations in the past two years to ensure we are relevant and to provide value to our members and the industry. There is still so much to do with limited time and resources to ensure everything is accomplished.

The Board initiated a formal goal-setting process during the July meeting in Denver. We began with a wide list of all we want to accomplish by year-end 2018. Next, we started refining and narrowing the list asking questions like 'what will provide the most value to our members' and 'what will make the Society better.' We asked each of the Technical Committees to set their goals as well. We established goals in the categories of Membership, Strategic Alliances, Administration, and Marketing. The goals will be finalized during the Board meeting in October.

Goals don't do much good unless they are accomplished. For us, that requires transparency and accountability. Following Board approval of the final goals, we will post them for your review on the ASPE website. Milestones for each goal will also be identified, allowing us to report our progress.

What do you think are the most important goals for the Society to accomplish? What can we do that will provide value to you as a member? Why do you think your employer gets value from you belonging to ASPE?

I invite your responses and discussion.



Marcene N. Taylor, CPE

GET CONNECTED

mtaylor@mticost.com

Marcene Taylor Inc.
NW MAL #90

The Importance of Mentorship in the Construction Industry

In an article in Engineering News, a mentor forces the new tradesperson to get their feet wet and "have lunch somewhere where you don't belong." In other words, get to know all trades and their jobs and, in turn, all aspects of a construction job site.

According to the National Bureau of Labor Statistics, by the year 2024, there will be a 10% growth in the construction industry. This will result in an overwhelming need to have veteran tradespeople on hand to guide apprentices entering the construction field.

A mentor/apprentice relationship is also a flexible and sustainable relationship over a longer period of time than just an instructor/student relationship and has very specific benefits to the apprentice.

- It can be established at one job site and then continue through a variety of different construction projects over a period of months or even a few years.
- It is less formal than a classroom setting, and the learning takes place as the situation occurs so that the information the mentor shares can be applied by the apprentice for immediate results.
- The apprentice has more control over what they learn and how they learn it as questions are asked as they go along in their tasks and actually begin again if they need to based on the feedback from their mentor.

There are also more specific advantages to a mentorship program in the construction industry.

1. Acceleration of Professional Development
   Imagine in any field having the opportunity to work one-on-one on a daily basis with a seasoned professional in your field of study. As challenging situations arise, an apprentice can use the knowledge they have from the classroom to figure out the best course of action to take in the situation, but then further that knowledge with the on-the-job insight and expertise of a mentor. This can only accelerate the process of learning for an apprentice so that they are confidently ready to enter their field much quicker and with greater knowledge of what to expect beyond the book knowledge they procured in the classroom.

2. Assessing Construction Trade Specialization

   A well-chosen mentor can assess what an apprentice's strengths and weaknesses are as they work with them. Because a well-seasoned mentor has more than likely seen all aspects of the construction world, they can determine what jobs are best suited for their apprentice and then suggest specific trades that the apprentice may want to pursue within the scope of the construction industry. A mentor may find that an apprentice excels at the skills needed for a mechanical engineer, or maybe he or she sees a real passion coupled with skill in the apprentice for working more in a carpentry capacity and suggests following this path in the trades' area.

3. Understanding What an Apprentice Needs to Learn

   A mentor's job is to circumvent an apprentice through all the book knowledge that they think they need on every construction site and to show them that often it is an instinct that gets the job done, coupled with a bit less reliance on reading the construction manual. This type of learning only really takes place if an apprentice can work closely with a veteran tradesperson who has developed an intuition about how to take care of tricky situations or difficult contractors and teach this to the apprentice as he or she observes the mentor perform his duties on a job site to remedy the situations that arise unexpectedly and may never be taught in a book.

4. Communicating with Contractors

   As any mentor will know from years of experience on construction job sites, dealing with tradespeople, including sub-contractors, can be the most difficult part of the job and one that may hold up a project for days, weeks, and even longer. Giving an apprentice the opportunity to observe how a mentor communicates with a variety of trade professionals from engineers to plumbers will give an apprentice a perspective on communication that they would mor than likely take years to establish on their own.

With a rapidly growing employee demand in all aspects of the construction trades and the overall industry in less than ten years, any program that helps to accelerate the growth of the new faces of the industry can only help the industry to prosper. ET

Jessica Kane is a professional blogger who writes for Federal Steel Supply, Inc., a leading steel tubing suppliers of carbon, alloy and stainless steel pipe, tubes, fittings and flanges.

The Faces of ASPE

Introducing .....

Robert Svoboda, CPE
Chicago #7 Chapter President
CCS International, Inc.

The best advice I ever received: Work hard and work smart

My 2018 goal for Chapter 7: To achieve the Plantinum Chapter Award

If I wasn't doing this ..... I would be an accountant

The best advice I share with young (& not so young) estimators: Listening is 50% of communication

HTETCO a Building Foundation with a Crawl Space

John Kovar, CPE
Southwest MAL # 91
Jkovar@sabrecommercial.com

Table of Contents

Section 1: Introduction

This technical paper is intended to provide the reader with a general understanding of the means and methods of estimating a building foundation with a crawl space. A foundation with a crawl space is generally more challenging than a slab on void forms or a simple slab on grade. A foundation with crawl space is most often utilized in a situation where the subgrade beneath the slab is composed of material that is either highly expansive or provides unsuitable bearing capacity for the foundation loading. Structural Engineers will generally choose a suspended slab construction method that is most economical for the spans and loadings needed. This will vary from simple elevated concrete flat plates to complete pan slab or waffle slab construction. In some instances, the use of precast beams, tees, planks or slab on metal deck over structural steel framing is utilized. The paper will outline the particular difficulties with constructing these structures with a crawl space that can provide limited accessibility, present production challenges and potentially impact the safety of workers. Estimators must way these factors in compiling an estimate for building foundations with a crawl space in addition to the usual expense of labor, materials and equipment.

Main Construction Specification Institute 2004

Master Format (i.e. CSI) Division
Division 03 – Concrete

Main CSI Subdivisions
Subdivision 03 10 00 - Concrete Forming and Accessories
Subdivision 03 32 00 - Concrete Reinforcing
Subdivision 03 33 00 - Cast-in-Place Concrete

Minor CSI Division
Division 31 – Earthwork

Minor CSI Subdivisions
Subdivision 31 23 16 – Excavation
Subdivision 31 23 19 – Dewatering
Subdivision 31 23 23 – Fill
Subdivision 31 63 26 – Drilled Caissons

Brief Description
The author will discuss the requirements of the Construction Estimator to review the plans and specifications, to perform a scope of work review, to perform quantity takeoffs, to compile all direct and indirect costs, and to factor these into a cost estimate using production rates and crew makeups that reflect the challenges of working in a confined area with less than desirable subsurface conditions. Sample takeoffs and cost estimates will be included. The paper will be presented from the point of view of a Construction Estimator preparing a General Contractor bid as opposed to a view of a subcontractor or material supplier. It is assumed that the plans and specifications have been developed to the Construction Document (CD) stage by the project design team. These projects are normally bid as a lump sum for the foundation, complete in place with subordinate work including piers or footings as designed by the engineer.

Section 2: Types and Methods of Measurement

Quantity takeoffs in a foundation with crawl space entail the quantification of many components associated with concrete work. The support system designed by the engineer could result in the need to quantify spread or spot footings, continuous footing or drilled caissons. Spread and spot footing will need to have the square foot (SF) of formwork, cubic yards (CY) of concrete, cubic yards of excavation, cubic yards of backfill, tons (TONS) or pounds (LBS) of rebar and square foot (SF) of surface for finishing established. For drilled caissons support structures, the lineal foot (LF) of drilled shaft per each diameter, the CY of concrete, TONS or LBS of rebar and SF of formwork for any portion of the shaft extending above the subgrade surface. Estimators can refer to detailed takeoff methods for each of these foundation types to insure complete quantity surveys are completed.

As stated earlier, the suspended slab portion of the project can either be a flat structural slab, a pan or waffle slab or even precast. Either of the suspended concrete slab solutions will require quantification of the SF of formwork, CY of concrete, TONS or LBS of rebar, squares (SQ) of mesh (100SF = 1 SQ) and SF of slab surface for finishing and curing costs. In addition, the slab type will dictate additional takeoffs for the formwork to include SF of contact area for slabs and beams and a quantification of the shoring for the suspended slab.

For this example, we will assume that the subgrade is excavated to a working elevation by an earthwork subcontractor and no additional mass excavation is required in this scope of work. Minor excavations and backfills will be addressed and the need for CY of backfill and the SF of backfill retainers will be analyzed.

Many foundations with crawl space utilize air vents at the perimeter that can be either poured in place or precast. For poured in place vents, the takeoff entails the typical concrete items of SF of formwork, CY of concrete and LBS or TONS of rebar. Precast vents are normally counted as a per each (EA) item. Often, the vents will have steel grating for ventilation that is priced by the SF with additional costs for the LF of imbedded support angle.

The height of the foundation above the subgrade can have a profound impact on the cost associated with the construction. Very low clearances will impact productivity rates and the means and methods of wrecking and removal of formwork. It is often beneficial to quantify the cubic feet of space beneath the slab so an analysis can be done of proper airflow and ventilation for the workers. The Occupational Safety and Health Administration (OSHA) guidelines for working in a confined space may be applicable and should be reviewed to determine any impact on the cost. Cost associated with providing positive ventilation and temporary lighting will usually be required. An additional item to consider is the use of a mud sill or mud slab to provide a stable working surface for the elevated formwork and subsequent work. Many designers will specify a mud slab as a project requirement to facilitate positive drainage, but the estimator may want to consider the inclusion of a mud slab, even if not required. The estimator should determine the impact of local weather patterns anticipated during the installation as wet season work could dictate the use of the mud slab to insure productivity is not handicapped and the safest possible work area is provided.

In performing the quantity surveys, the estimator should give consideration to other parametric quantities that may provide useful in future estimates. By documenting items such as caisson cost per LF of differing diameters, cost per SF of the entire foundation system, cost per SF of the varying slab types such as pan slab or waffle slab, the estimator can perform rapid parametric estimates from preliminary plans or sketches on future projects. It is very easy to capture a few "extra" parameters when performing your estimate to include in your historical database for future reference. Many modern day estimating software solutions incorporate model based, or parametric estimating methods to allow for quick budgetary estimates to be compiled from historical data.

Section 3: Project Specific Factors to Consider in Takeoff and Pricing

Magnitude of Work

It is a widely accepted principle that projects of larger size and quantities will generally have a lower unit costs than projects of smaller size and lesser quantities. On larger foundation projects, the opportunity for re-use of formwork is more prevalent than on small projects and the increased volume of materials can result in significantly lower unit costs. In addition, the labor efficiencies are higher on larger projects which, in turn, will result in a lower unit cost for similar work. A project involving 30,000 SF of elevated slab as compared to a slab of 10,000 SF, is conducive to two or three separate pours, which would allow for re-use of the foundation formwork either two or three times.

Geographic Location

The geographic location of the project can have a profound effect on the costs of a project. Material availability varies from region to region as do the associated costs in each region. The distance from the source of supply of the materials will impact the cost of delivery due to trucking costs associated with the cost of fuel and labor. Regional differences in labor costs, union vs. non-union and general availability of skilled workers in an area must be taken into consideration as there can be substantial differences depending on the location. In remote locations, consideration of employee transportation, housing and per diem costs must be considered.

Seasonal Effect on Work

Construction of a foundation with crawl space can be impacted by various seasonal variances. Both extremes of cold and hot can affect labor production rates and thus the estimated cost. Cold weather will have a tendency to slow production of man and machine while excessively hot weather can reduce production as well as be hazardous to workers unless sufficient breaks in the work are scheduled. Protection of the concrete foundation must be provided in cases of extreme cold, extreme heat or rainy conditions. The working surface can become unstable in cases of extreme moisture or rain and the cost of dewatering is often a factor. The Construction Estimator must be familiar with the planned construction schedule to perform a proper analysis of the potential impact of historically inclement weather periods on the work that will occur in less than optimum conditions.

Special Conditions Affecting Construction of a Foundation with Crawl Space

Because of the nature of installing a foundation with a crawl space, there are several additional factors that the Construction Estimator must take into account. The major item of consideration is the height of the foundation above the subgrade and the amount of clearance below the structure for personnel, material and equipment to execute the work. In some instances, the clearance would be as low as two feet, requiring workers to crawl throughout the space, while in others, the clearance could be in excess of 10 feet and require workers to use lifts or scaffolding. It should be obvious to the Construction Estimator that these two extremes on clearance can have a profound effect on the cost of the work. It is advisable for the Construction Estimator to work with the proposed construction team to develop a plan for the means and methods that will be used to address the unique conditions and the impact on the estimated cost. The condition of the subgrade that will support the foundation formwork is also of extreme importance. Should inclement weather occur, the subgrade could become unstable and unable to support the formwork for the elevated foundation. The unstable subgrade will also have a negative impact on the labor productivity and safety of the workers. It is this potential negative impact that often dictates the use of a mud slab in the crawl space to facilitate a safe and stable foundation for the work. An added benefit of a mud slab is the increased productivity of formwork removal verses removal across bare earth or even muddy soil and the ability to provide adequate drainage in the event of the occurrence of rain. When analyzing the productivity of the formwork and removal operations, the Construction Estimator must analyze the means of egress into the crawl space. Often times, it is necessary to leave an over-excavated area or a leave-out in the perimeter foundation to provide for effective removal of formwork during the wrecking operations. The cost or replacement for the over-excavation or leave-out must be taken into account. The Construction Estimator must also be aware of the unique challenges presented by the construction of a foundation with a crawl space. The confined space of a low clearance crawl space may dictate the need for a ventilation system to prove adequate air flow for the workers. Additionally, the crawl space may need temporary lighting to provide the required illumination for a safe working area. The Construction Estimator should be familiar with the OSHA definitions of a confined space and of the requirements for working in a confined space. It is highly recommended that the Construction Estimator keep up to date with OSHA regulations by attending training available, either from his/her employer or from OSHA.

In summary, there are significant factors affecting the construction of a foundation with a crawl space in addition to the normally mentioned small vs large quantities, geographic location and seasonal effect on the work. The confined space, unstable subgrades and reduced production provides unique challenges not normally seen in the construction of building foundations.

Section 4: Labor, Material, Equipment, Indirect Costs, Approach and Mark-up

The first step in preparing and estimate for a foundation with a crawl space is to prepare a sequencing plan for the type of slab to be installed. For this paper, we will be utilizing a pan slab elevated foundation with a support structure of drilled piers and include a mud slab to provide an adequate working surface. As with any poured in place structure, the size of the foundation will dictate the number of pours to be accomplished. The availability of form materials could also affect the size of each pour, and thus the total number and size of each of pour. The Construction Estimator must perform an analysis to determine if smaller pours with formwork re-use is more economical than formwork costs for larger pours with no re-use of the forming material. The analysis can be further influence by the variable of owned forms vs. rented forms as rented forms have a time component that may not be applicable if the formwork is owned.

Before any formwork for the elevated slab can be initiated, the supporting footings or piers must be in place. The production rate for the footings will impact the sequencing and duration of the elevated slab. On larger projects, where larger pours are anticipated, it is necessary to have a larger quantity of footings in place prior to commencement of elevated formwork in order to not negatively impact production, and thus cost. The Construction Estimator must quantify and price the cost of the drilled pier foundation. On a drilled pier foundation, the items to be quantified and priced include the cost to drill the piers per LF, any formwork cost per SF, the cost of rebar per TON, the cost of concrete materials in CY and the cost to wreck forms and finish exposed concrete in SF. The quantity the materials for the piers, the Construction Estimator must know the diameter (d) of the piers, the overall height consisting of the depth to be drilled and the height to be formed above subgrade and the sizing of vertical rebar and stirrups.

The CY of the pier is determined by the mathematical formula **$pr^2h/27$** where π is the numerical constant PI of 3.1416, r is the radius of the pier squared and h is the overall height of the pier producing cubic feet of pier which is then divided by 27 to get the cubic yards of concrete in the pier. As the majority of the pier is earth formed, it is customary to use a larger waste factor of 10% in quantifying the CY of concrete to be purchased and installed. As an example, a 24" diameter pier, 20 feet in overall height would calculate to require 2.56 CY of concrete (3.1416 x 1 x 1 x 20 / 27 x 1.1=2.56). Assuming the crawl space used a clearance of 6 feet, the top 6 feet of the pier would need to be formed. The SF of formwork is determined by the mathematical formula **pdh** which is PI (3.1416), the diameter (d) of the pier of 2 feet and the formed height of 6 feet. The example pier would calculate to require 37.70 SF of formwork (3.1416 x 2 x 6) The reinforcing steel is determined by taking off the total length of each size or reinforcing bar and stirrup, multiplying by the weight per foot of each bar size and then dividing the total weight by 2000 to get the number of tons of rebar.

Once the foundations have been estimated, the cost of the mud slab being installed as working surface must be quantified and priced. Most mud slabs are taken off as a typical slab on grade with the major difference being the finish is normally floated or broom finished only and the mud slab can be either un-reinforced or reinforced with a light gauge mesh. The estimator will take off the SF of slab area in a Length x Width scenario or use an on screen digitizing tool to get the total SF and perimeter. The estimator can then multiply by the depth of slab, divide by 27 to convert to CY and apply any waste factors. The resulting quantities for CY of concrete, LF of perimeter form, SQ of mesh and SF of finish can then be priced. As the mud slab is normally placed in the bottom of a sloped excavation, it is most often necessary to place the concrete via pumping and the cost of pumping must be added.

The suspended structural slab is the next item to be quantified and priced by the estimator. As previously stated, the suspended slab for a foundation with a crawl space can be any of the typical elevated concrete structure types. These can include flat plate slabs, pan formed slabs, waffle slabs, post tensioned slabs, precast slabs or slab on metal deck over structural steel. It would be beyond the scope of this document to address all these variables. We will address the requirements of a pan slab structural slab for this paper. The Construction Estimator can refer to the many published papers regarding the estimating procedures for any of the methods indicated and refer to historical cost databases as a guideline.

The structural pan form slab will require the quantification of the SF of formwork for the pan system, the SF of formwork for beam sides, the CY of concrete, the TONS of rebar, the SF of slab finish, the LF of backfill retainer and the LF of any ledge forms. For this exercise, we will assume that the final backfill at the perimeter is an earthwork subcontract item and not included in the scope of this estimate.

To estimate the quantity of concrete for the pan form slab, the variable to be addressed include the overall depth of the pan slab system, the overall length of each type of pan form, the dimensions of any beams that extend below the overall pan form depth and any area of flat plate construction with thickness different than the typical pan form slab. The Construction Estimator can refer to published standards from formwork suppliers that will provide the CF of void space for the various pan form sizes. Additionally, the working height in the crawl space area must be taken into consideration for the impact on productivity that results from low clearances and unusual working conditions. If the normal production rate for a formwork crew on a standard pan slab system is 10 SF/HR, the confined space and conditions could potentially reduce the production by as much as 50%, resulting in a production rate of only 5 SF/HR.

The first step in quantifying the CY of concrete for the pan slab is to determine the design depth of the pan system. Typical depths for pan form systems are 14", 16" and 20" with the 20" module being the most prevalent and the one used in our example. The Construction Estimator should determine the total SF of the pan slab area and multiply by the depth of 20" (1.67 ft) to get the total CF of the pan slab system.

The next step is to determine the total length of each pan size and multiply by the CF/LF void factor to determine the total CF to be subtracted. The resultant CF amount is converted to CY and any waste factors are applied. The Construction Estimator should then review the concrete beams included in the pan slab system to determine if any beams are deeper than the 20" pan slab system. If beams are deeper than the overall system, the Construction Estimator must quantify the additional concrete and formwork for the beam extensions. The reinforcing steel for the pan slab is computed by taking the total LF of each bar size in the slab, beams and joists and multiplying by the weight per foot of each bar size to determine the total LBS of rebar, then dividing by 2000 to get the total TONS of rebar.

The pan slab system may contain openings, depressed areas and imbeds. The Construction Estimator must review the slab for non-standard items and include line items in the estimate to account for their costs.

Upon compilation of the raw cost of the project, the Construction Estimator must take into account the additional indirect costs to be included in the estimate. These can include cost of temporary facilities, testing, permits, taxes, bonding and insurance. Lastly, the Construction Estimator must calculate the cost of project supervision and the overhead to properly manage the project. After all costs have been calculated, all indirect costs analyzed and the production rates, material and subcontract costs confirmed, the management team will have sufficient data to determine the percentage or mark-up or profit to include in the estimate. It is normally the management of the company that will decide on the appropriate mark-up based upon current company backlog, project complexity and anticipated competition on the project. Normally, projects with higher risk command a higher fee, projects with more competitor's results in lower fees and contractors with little or no backlog may be more aggressive to insure work is captured to utilize available staffing. Mark-up decisions vary greatly between firms and those decisions are normally relegated to the management team having profit and loss responsibility for the company.

Section 5: Special Risk Considerations

As previously discussed, construction of a foundation with a crawl space will entail additional risks not normally associated with a typical slab on grade, or even elevated slab construction. The potential for confined space will adversely affect the production rates for installation and removal of formwork. The depressed subgrade elevation can present a less than optimal working surface should inclement weather become a factor. When formwork is complete and the crawl space is confined, the need for temporary ventilation could come into play. All of these factors play a role in determining the premium associated with construction of a foundation with a crawl space.

Section 6: Ratios and Analysis – Testing the Bid

Because of the unique methods in constructing a foundation with a crawl space, it is not always possible to develop rules of thumb, or conceptual values that would apply to all projects. However, it is good estimating practice to maintain a historical database of each of the components that make up a foundation with crawl space that can be compiled into a parametric estimate. Construction Estimators should use not only the cost compiled in successful estimate and constructed projects, but should also develop methods to track the same parametric values for all estimates. By developing methods of tracking parametric numbers early in your estimating career, you will obtain a plethora of information for utilization in any estimating effort you are asked to undertake.

For the foundation with a crawl space in our example, the estimator can compare historical parametric values to test his estimate for the following items.

Drilled Piers – Capture and compare the cost/LF for each drilled pier size with projects with similar sized and depth of piers. Capture and compare the LBS of rebar/LF of each size pier. Capture and compare the overall cost/CY for each size of pier.

Pan Slab – Capture and compare the overall cost/SF of the complete pan slab system. Capture and compare the overall cost/CY of the complete pan slab system. Capture for future reference the CY/SF of the complete pan slab system. Capture and compare the cost/SF of the pan slab formwork system making note of the clearance that was available in the crawl space.

For example, after estimating several pan slab foundations with a crawl space, the Construction Estimator should be able to develop and maintain historical parametric values such as:

A pan slab foundation on drilled piers with a 4ft clear crawl space is in the $25-$35/SF range

A pan slab foundation on drilled piers with a 7ft clear crawl space is in the $20-$25/SF range.

These type of parametric numbers are invaluable as a reference in future estimates.

Section 7: Miscellaneous Pertinent Information

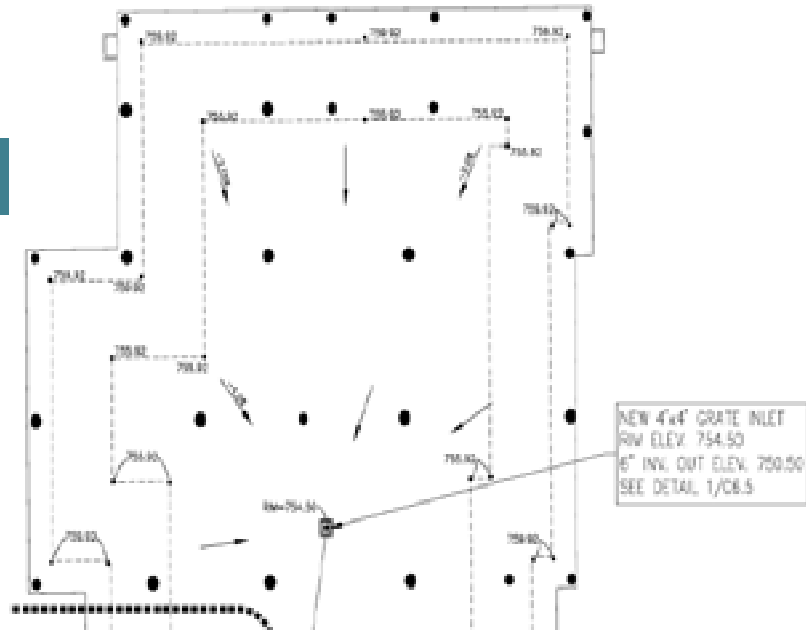
The Construction Estimator must be aware of the laws, rules and regulations of the contract imposed by federal, state and local jurisdictions that have authority in the area of the project construction. The Construction Estimator must always review the contract requirements in Division 1 of the specifications for items that impact the cost of any estimated work for the project.

Some jurisdictions will require contractors to obtain a certain percentage of participation by historically disadvantage businesses for any work subcontracted. A local jurisdiction may have adopted a standardized Davis-Bacon wage scale that set the minimum amounts of base pay and benefits that workers must be paid. The specifications could set mandatory requirements for employee screening for drug and alcohol use and the cost associated with testing and documentation must be included. Additionally, a jurisdiction may require that a contractor's field supervision have OSHA certified training such as a 10 hour or 30 hour training course.

A sometimes overlooked jurisdictional impact is the imposition of limits on working hours. A local city, or even subdivision, could limit construction work start and finish times by ordinance only allowing work between the hours of 7:00 a.m. to 7:00 p.m. for example. The Construction Estimator must be aware of any such restrictions, especially in a concrete operation, as it is normal to start a concrete pour at an early hour to facilitate timely completion and to properly coordinate the placing requirements in respect to concrete temperatures. If work restrictions are in place, the impact on cost and sequencing of work must be taken into consideration.

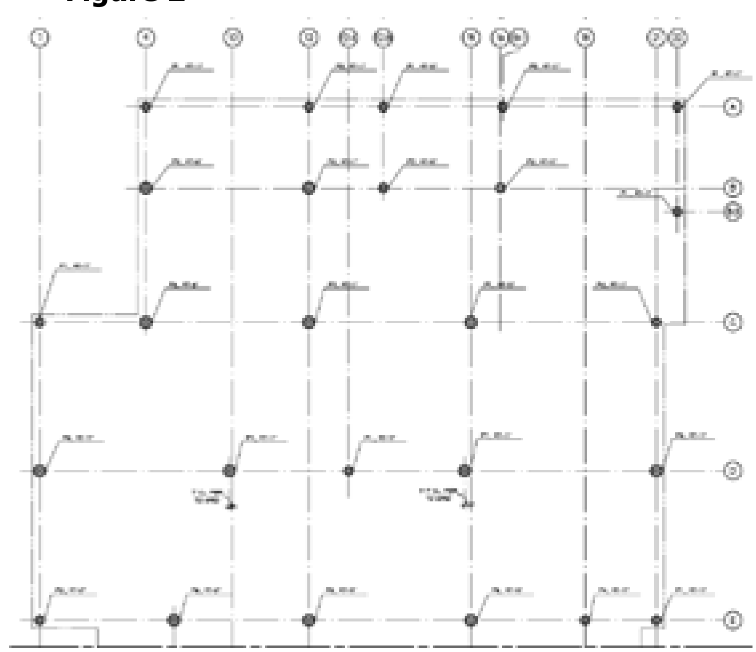
Section 8: Sample Plans and Details

Figure 1



On this page, we see the proposed finish grades for the crawl space beneath the elevated slab. The crawl space has a difference in elevation of nearly 5.5 feet from the perimeter to the center of the slab. We can also see that a drainage system is incorporated into the crawl space with a grate rim elevation of 754.50. The Construction Estimator will need to coordinate the elevations from the civil drainage plan with the elevations on the structural plans.

Figure 2



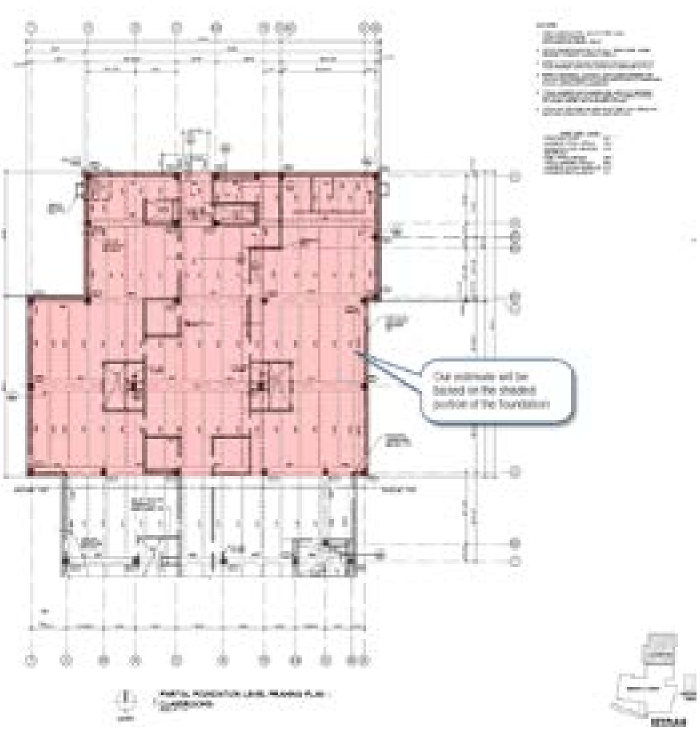
PIER SCHEDULE						
MARK	SHAFT DIAMETER	BELL DIAMETER	VERTICAL BARS	TIES/ PITCH	B.O. PIER ELEVATION	REMARKS/ DETAIL
P1	18"	--	(6)- #7	#3 @ 12"	736'-0"	2/S1.0
P2	18"	--	(6)- #7	#3 @ 12"	733'-0"	2/S1.0
P3	18"	--	(6)- #7	#3 @ 12"	728'-0"	2/S1.0
P4	18"	--	(6)- #7	#3 @ 12"	729'-0"	2/S1.0
P5	18"	--	(6)- #7	#3 @ 12"	718'-0"	2/S1.0
P6	24"	--	(7)- #8	#3 @ 12"	718'-0"	2/S1.0
P7	24"	--	(8)- #8	#3 @ 12"	715'-0"	4/S1.0
P8	18"	--	(6)- #7	#3 @ 12"	736'-0"	CANOPY/ 3/S1.0
P9	24"	--	(7)- #8	#3 @ 12"	733'-0"	2/S1.0

In figure 2, we see the designation for the drilled piers and the top of pier elevation required. The estimator will need to refer to the Pier Schedule to determine overall depth of the pier and the reinforcing required. The estimator must also determine the length of pier that extends above the subgrade to include the needed formwork. It is often helpful to do an overlay of the under slab drainage plan with the pier plan to get a clear representation of the formed height required.

Figure 3

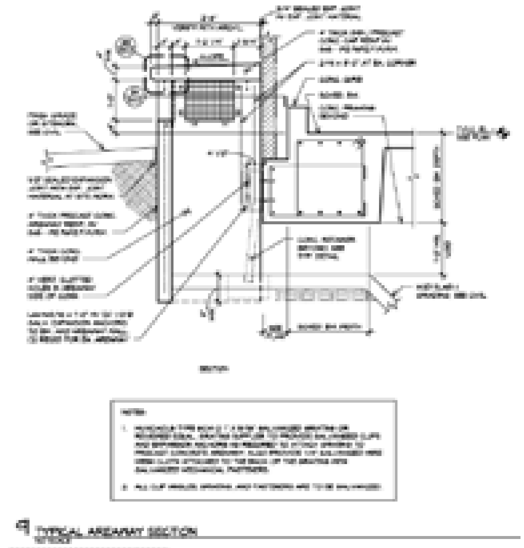
PLAN NOTES:

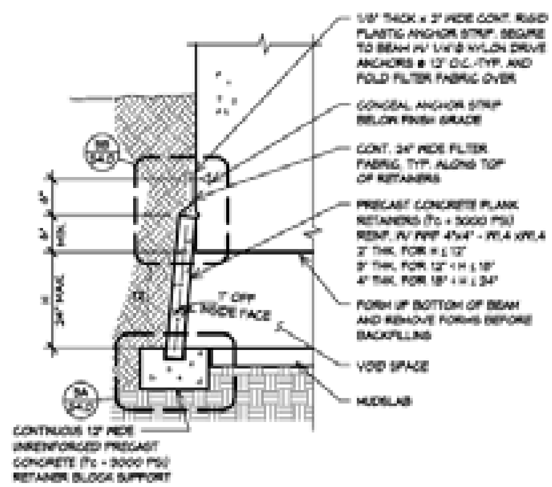
1. FINISH FLOOR ELEVATION = 100'-0" AT FIRST LEVEL, UNLESS NOTED OTHERWISE. ACTUAL ELEVATION 763.00' = 100'-0".



We will estimate the cost of the suspended pan form slab with a crawl space for the shaded area shown in this figure. Observe that the structural slab notes indicate the structural elevation of 100.0 on the plan corresponds to actual elevation 763, resulting in a crawl space from less than 2 feet to approximately 7 feet.

Figure 4





This is the detail of the crawl space slab perimeter. Note the precast areaway vent and the minimum void under the perimeter beam of the pan slab of 1 foot. The void form retainers in the detail are made of a precast plank with a poured in place retainer block support. The Construction Estimator will need to quantify and price the retainer support block and retainers by taking off the total length of the exterior beam condition. For this estimate, we will assume that the waterproofing of the exterior beam and backfill of the exterior beam are subcontracted and not a part of this estimate.

Figure 5

Sample Beam Schedule

Mark	W x D	Top Bars	Bottom Bars	Stirrups
1B1	24 x 25	4-#6	4-#8	#3@10"
1B2	24 x 25	4-#6	4-#8	#3@10"
1B3	24 x 25	4-#6	4-#8	#3@10"
1B4	24 x 25	4-#6	4-#8	#3@10"
1B5	24 x 25	4-#6	4-#8	#3@10"
1B6	24 x 25	4-#6	4-#8	#3@10"
1B7	24 x 25	4-#6	4-#8	#3@10"
1B8	24 x 25	4-#6	4-#8	#3@10"
1B9	21 x 25	4-#6	4-#8	#3@10"
1B10	24 x 25	4-#6	4-#8	#3@10"
1B11	30 x 25	6-#6	6-#8	#3@10"
1B12	36 x 25	8-#9	8-#9	#3@10"
1B13	17.5 x 25	3-#6	3-#6	#3@10"
1B14	36 x 25	8-#9	8-#9	#3@10"
1B15	36 x 25	8-#9	8-#9	#3@10"

Mark	W x D	Top Bars	Bottom Bars	Stirrups
1B16	30 x 25	6-#6	6-#8	#3@10"
1B17	30 x 25	6-#6	6-#8	#3@10"
1B18	24 x 36	5-#6	5-#6	#3@10"
1B19	30 x 25	6-#6	6-#8	#3@10"
1B20	30 x 25	6-#6	6-#8	#3@10"
1B21	30 x 25	6-#6	6-#8	#3@10"
1B22	24 x 25	4-#6	4-#8	#3@10"
1B80	18 x 25	3-#6	3-#6	#3@10"
1B81	18 x 25	3-#6	3-#6	#3@10"
1B92	18 x 30	5-#6	5-#6	#3@10"
1B93	18 x 25	3-#6	3-#6	#3@10"
1B105	24 x 25	4-#6	4-#8	#3@10"
1B106	24 x 25	4-#6	4-#8	#3@10"
1B107	18 x 25	3-#6	3-#6	#3@10"
1B108	18 x 25	3-#6	3-#6	#3@10"

Sample Joist Schedule

Mark	W x D	Top Bars	Bottom Bars	Stirrups
1J15	8 x 25	2-#8	2-#8	#3@10"
1J15A	8 x 25	2-#6	2-#9	#3@10"
1J16	8 x 25	2-#8	2-#6	#3@10"
1J16A	8 x 25	2-#8	2-#9	#3@10"
1J17	8 x 25	2-#8	2-#8	#3@10"
1J18	8 x 25	2-#8	2-#6	#3@10"

Published data for the amount of void space per lineal foot of pan form is used to calculate the total cubic foot of void. The Construction Estimator will calculate the total volume of the pan slab over its total depth of 25 inches and then subtract the void created by the various sizes of the pan forms. When pan sizes are designed by the engineer that do not match the published sizes, the estimator should subtract the void associated with the next smaller sized. For example, if a 59 inch wide pan is drawn, subtract the void for a standard 53 inch pan.

A simplified beam and joist schedule is shown in the diagram to be used in the calculation of the CY of Concrete and TONS of reinforcing steel for the beam and joist portions of the pan slab. The schedules have been simplified for this estimating exercise. The Construction Estimator should refer to additional published data regarding the means and methods of performing a detailed reinforcing steel takeoff for poured in place structures. It is advisable to capture parametric information in all your estimates for future reference such as TONS/CY for beams or Average LBS/LF for various beam spans and sizes.

Figure 6

Voids Created by Various Size FLANGEforms

Shaded areas below indicate standard filler widths

Depth of Steelform	Cubic feet of void created per linear foot by width of FLANGEform				*Added Cu. Ft. of Concrete per Tapered End Condition	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10"	2.023	1.339	.982	.834	.821	.418
12"	2.418	1.551	1.365	.748	.828	.500
14"	2.801	1.829	1.343	.857	.730	N.A.
16"	3.165	2.072	1.516	.951	.834	N.A.
20"	3.933	2.544	1.850	1.155	1.043	N.A.
24"	4.667	3.000	Not Available		Not Available	

*** Total void width tapers from 30" to 25" or 20" to 16" in

Voids Created by Design Module

Depth of Void	Cubic feet of void created per linear foot	
	53" Void	66" Void
14"	Not Available	6.303
16"	5.741	7.185
20"	7.130	8.935
24"	8.500	10.657

Section 9: Sample Estimate Takeoff Information

Figure 7 *Foundation Piers Take-Off (see end)

Since our total slab area is only 9,300 SF, we will assume a single pour. This will result in the installation of 9,300 SF of pan slab formwork so no re-use of forms will be anticipated.

Figure 8 ** Plan Slab Reinforcing (see end)

The reinforcing amounts are taken from the sample beam and joist schedules provided in Section 9 – Sample Plans and Details. Most projects will have a more complicated beam and joist schedule. The Construction Estimator should refer to additional reference materials for performing a detailed concrete reinforcing takeoff. In most situations, the general contractor or concrete subcontractor will rely heavily on material pricing from reinforcing steel suppliers. It is highly recommended that these quotations be checked for accuracy. Additionally, the Construction Estimator should require sufficient detail in his reinforcing steel quotations with line item amounts for the major components. In this way, the Construction Estimator can develop parametric, rule-of-thumb quantities for the differing types of reinforced concrete structures such as average LBS per SF per slab type, average LBS per LF for different pier diameters, average LBS per SF for columns of varying sizes.

Pan Slab Concrete

		Length	Width	Depth	Area (sf)	Pan Void	Volume	
1	Pan Slab Area			2.083	9300		19,375	
	66" Void Forms	1050				8.935	(9,382)	
	53" Void Forms	175				7.13	(1,248)	
	20" Void Forms	45				2.54	(114)	
2	Beams w/ extra Depth	Length	Width	Depth		Extra Depth"		
	1B18	25	24	36		11	46	
	1B92	23	18	30		5	14	
	Totals						8,691	CF
							338	CY

The pan slab concrete volume is calculated by multiplying the area of pan slab by the overall pan slab system depth (20" pan + 5" slab = 25"). From the resultant, the volume of the voids created by the pan forms is subcontracted. Finally, the volume of any beams or structural members that extend below the 25" overall system depth is added to formulate the overall total volume of concrete. The Construction Estimator will then divide the volume by 27 to get the CY of concrete and apply any waste factors. In our example, we have applied a 5% waste in this calculation.

Pan Slab Miscellaneous Items

Areaway Vents	2	EA
Backfill Retainers	310	LF

The Construction Estimator must also quantify any miscellaneous items that will be included in the pricing for the pan slab system. In this example, we have counted the number of precast areaway vents to be installed and the total LF of perimeter backfill retainer

Section 10: Sample Estimate Pricing Information

Figure 9 * Sample Estimate (see end)**

Section 11: Terminology-Glossary

Construction Specifications Institute 2004 Master Format

The 2004 revised edition of the Construction Specifications Institute (CSI) directory of construction specifications is a numbering system used throughout the construction industry by designers and builders to classify, itemize and arrange specifications in an organized fashion. The 2004 Master Format construction specifications contains in excess of 40 major divisions. Versions of the CSI publications prior to 2004 contained only 17 Divisions

Crawl Space

The dictionary definition of a crawl space is "a shallow unfinished space beneath the first floor of a building utilized for access to plumbing or wiring". Designers also use a crawl space when subsurface soil conditions are not suitable for utilizing a ground support foundation.

OSHA

With the Occupational Safety and Health Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) to assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance.

Davis-Bacon Wage Rates

The Davis-Bacon Act of 1931 is a federal law that establishes the requirement for paying a prevailing wage rate on public works projects. Most federal, state and locally funded public works projects in the United States are subject to this act. The prevailing wage rates for public projects are usually determined by each state's Department of Labor and adopted by the varying city, county and state jurisdictions. ET

* Figure 7 Foundation Piers Take-Off

Section 9 Sample Estimate Takeoff Information

Foundation Piers Take-Off

Pier	Type	Diam(in)	Bottom Elevatio	Top Elevatio	Elevation At Grade	Total Height	Drilled Depth	Vert Bars	Total Bar	Stirrups	Stirrup Weight	Total Weight	CY Conc	Pier Form (LF)
A9	P1	18	736	760.92	760	24.92	24	6-#7	330	#3@12	49	379	1.79	1
A12	P3	18	728	760.92	760	32.92	32	6-#7	428	#3@12	64	492	2.37	1
A12.8	P1	18	736	760.92	760	24.92	24	6-#7	330	#3@12	49	379	1.79	1
A16.1	P3	18	728	760.92	760	32.92	32	6-#7	428	#3@12	64	492	2.37	1
A22	P1	18	736	760.92	760	24.92	24	6-#7	330	#3@12	49	379	1.79	1
B9	P6	24	718	760.5	760	42.5	42	7-#8	832	#3@12	83	915	5.44	1
B12	P6	24	718	760.92	757	42.92	39	7-#8	840	#3@12	84	923	5.49	4
B12.8	P3	18	728	760.92	757	32.92	29	6-#7	428	#3@12	64	492	2.37	4
B16	P2	18	733	760.92	757	27.92	24	6-#7	367	#3@12	54	421	2.01	4
B.2-22	P1	18	736	760.92	760	24.92	24	6-#7	330	#3@12	49	379	1.79	1
C7	P1	18	736	760.92	760	24.92	24	6-#7	330	#3@12	49	379	1.79	1
C9	P6	24	718	760.5	760	42.5	42	7-#8	832	#3@12	83	915	5.44	1
C12	P7	24	718	760.92	755	42.92	37	8-#8	959	#3@12	84	1043	5.49	6
C15	P7	24	718	760.92	755	42.92	37	8-#8	959	#3@12	84	1043	5.49	6
C21	P4	18	729	760.92	760	31.92	31	6-#7	416	#3@12	62	478	2.30	1
D7	P6	24	718	760.5	760	42.5	42	7-#8	832	#3@12	83	915	5.44	1
D10	P7	24	718	760.92	755	42.92	37	8-#8	959	#3@12	84	1043	5.49	6
D12.4	P1	18	736	760.92	755	24.92	19	6-#7	330	#3@12	49	379	1.79	6
D15	P7	24	718	760.92	755	42.92	37	8-#8	959	#3@12	84	1043	5.49	6
D21	P6	24	718	760.5	760	42.5	42	7-#8	832	#3@12	83	915	5.44	1
E7	P2	18	733	760	759	27	26	6-#7	356	#3@12	53	408	1.94	1
E9	P6	24	718	760	757	42	39	7-#8	822	#3@12	82	904	5.38	3
E12	P6	24	718	760.92	755	42.92	37	7-#8	840	#3@12	84	923	5.49	6
E15	P6	24	718	760.92	755	42.92	37	7-#8	840	#3@12	84	923	5.49	6
E18	P4	18	729	760.92	758	31.92	29	6-#7	416	#3@12	62	478	2.30	3
E21	P1	18	736	760.92	760	24.92	24	6-#7	330	#3@12	49	379	1.79	1
		26 EA					834 LF					8.71 TONS	93.81 CY	74 LF

The calculation of Total Bar Weight takes into consideration that the Pier reinforcing extneds into the beam above. Two feet of length was added to the Overall Depth dimension to account for the extension into the beam. The stirrups had a 10% factor added for bar laps.

Pan Slab Formwork

	Length	Width	Depth	Area (sf)
Pan Slab System				9,300.00
Perimeter Beam Side	310		2.0833	646
1B18 Extra Depth (2 sides)	25		0.92	46
1B92 Extra Depth (2 sides)	23		0.42	19
	Total Beam Side Formwork			711

Figure 8 Plan Slab Reinforcing

Pan Slab Reinforcing

	Length	Weight/LF	Total Weight	Area (sf)
5" Slab 6x6 D6 Mesh	--	--	--	9,300.00
17.5 x 25 beams	5.00	10.91	55	
18 x 25 beams	68.00	10.91	742	
21 x 25 beams	20.00	18.59	372	
24 x 25 beams	274.00	18.59	5,094	
30 x 25 beams	152.00	26.93	4,093	
36 x 25 beams	87.00	56.30	4,898	
18 x 30 beams	23.00	16.92	389	
24 x 36 beams	25.00	16.92	423	
IJ15,IJ17	605.00	12.58	7,611	
IJ15A	90.00	11.70	1,053	
IJ16,IJ18	517.00	10.24	5,294	
IJ16A	68.00	14.04	955	
Totals			30,978	LBS
20% Laps and Hooks			37,174	LBS
			19	TONS

***Figure 9 Sample Estimate (see end)**

Section 10 – Sample Estimate Pricing Information

Pan Slab Pricing

Craftsmen Utilized		Crew	Rate
1	Carpenter Foreman	CF	$30/HR
2	Carpenter	C	$25/HR
3	Rebar Installer	R	$20/HR
4	Concrete Finisher	F	$25/HR
5	Equipment Operator	O	$30/HR
6	Laborer	L	$15/HR

Rates above are unburdened / base rates

Equipment Utilized			
1	Loader / Backhoe	BH	$40/HR
2	20 ton RT Crane	RT	$60/HR
3	Air Compressor	AC	$15/HR
4	Trowel Machine	TM	$5/HR

Drilled Piers				Crew Hrs.	Crew Rate		Labor	Mat UP		Mat	Eq UP		Eq	Sub UP		Sub	Total
Layout & Engineering	1CF-1L	26	EA	6.2	45	$	234	5	$	130	5	$	130	14	$	364	858
Drill Piers	sub	834	LF											15	$	12,510	12,510
Pier Reinforcing	2R	8.71	TONS	69.7	40	$	2,788	950	$	8,275	10	$	87	0	$	-	11,150
Form Exposed	1C-1L	74	LF	5	45	$	225	8	$	592		$	-	0	$	-	817
Place Concrete (pump)	1C-1F-2L	94	CY	23.5	80	$	1,880	105	$	9,870	8	$	752	0	$	-	12,502
Totals							5,127			18,867			969			12,874	37,837

Cost / CY	402.52	The Construction Estimator should capture and analyze the parametric numbers for the drilled piers portion of the work. In our case, 402.52/CY and 41.67/LF do not appear out of the ordinary for the raw cost of this work.
Cost / LF	41.67	

Pan Slab				Crew Hrs	Crew Rate	Labor	Mat UP	Mat	Eq UP	Eq	Sub UP	Sub	Total
Layout & Engineering	1CF-1C-1L	9300	SF	93	70	$ 6,510	0.1	$ 930	0.1	$ 930	0	$ -	$ 8,370
Mud Slab Pour	2F-2L	95	CY	6	80	$ 480	90	$ 8,550	1	$ 95	8	$ 760	$ 9,885
Mud Slab Finish	2F-1L	9300	SF	8	65	$ 520	0.1	$ 930	0	$ -	0	$ -	$ 1,450
Pan Slab Forms/Shoring	1CF-4C-1L	9300	SF	248	145	$ 35,960	6.5	$ 60,450	1	$ 9,300	0	$ -	$ 105,710
Pan Slab Beam Sides	1CF-4C-1L	710	SF	10	145	$ 1,450	4.5	$ 3,195	1	$ 710	0	$ -	$ 5,355
Pan Slab Beam Drops	1CF-4C-1L	48	SF	1	145	$ 145	6.5	$ 312	1	$ 48	0	$ -	$ 505
Reinforcing Steel	3R	19	TONS	100	60	$ 6,000	950	$ 18,050	50	$ 950	0	$ -	$ 25,000
Pan Slab Mesh	2R-2L	93	SQ	35	70	$ 2,450	22	$ 2,046	1	$ 93		$ -	$ 4,589
Pour Pan Slab Concrete	1C-3F-3L	338	CY	6.75	145	$ 979	110	$ 37,180	3	$ 1,014	8	$ 2,704	$ 41,877
Finish Pan Slab	4F-2L	9300	SF	9	130	$ 1,170	0.1	$ 930	0.1	$ 930		$ -	$ 3,030
Wreck/Remove Forms	2C-2L	9300	SF	80	80	$ 6,400	0	$ -	0.1	$ 930		$ -	$ 7,330
Pan Slab Ventilation		1	LS	0	0	$ -	0	$ -	750	$ 750		$ -	$ 750
						$ 62,064		$ 132,573		$ 15,750		$ 3,464	$ 213,851

Cost / SF	22.99	The Construction Estimator should capture and analyze the parametric numbers for the pan slab portion of work. In our case, 22.99/SF and 632.69/CY seem reasonable for this type of work due to reduced production for confined space.
Cost / CY	632.69	

Pan Slab Miscellaneous

Areaway Vents	2C-2L	2	EA	8	80	$ 640.00	2500	$ 5,000.00	0.1	$ 0.20	0	$ -	5,640
Backfill Retainers	1C-1L	310	LF	31	40	$ 1,240.00	15	$ 4,650.00	1	$ 310.00	0	$ -	6,200
Retainer Block Footing	1C-1L	310	LF	31	40	$ 1,240.00	6	$ 1,860.00	2	$ 620.00	0	$ -	3,720
						3,120		11,510		930		-	15,560

Estimate Summary		Labor	Material	Equipment	Sub	Total
Drilled Pier Foundation		5,127	18,867	969	12,874	37,837
Pan Slab System		62,064	132,573	15,750	3,464	213,851
Misc. Items		3,120	11,510	930	-	15,560
Subtotals		70,311	162,950	17,649	16,338	267,248
Labor Burden @ 35%		24,609				24,609
Permits	2.50%		2,500			2,500
General Conditions	5%					13,362
Field Operations Subtotal						307,719
Bonds & Insurance	2.5%					7,693
Home Office Overhead	3.0%					9,232
Contractors Fee	6.0%					18,463
Total Estimate						**343,106**
Cost/SF	9300 SF					36.89
Cost/CY	432 CY					794.23

Click here for Complete Drawings

The War Room

Every estimator who has worked for a General Contractor knows about the **"War Room"**. It's where your team traditionally gathers on bid day to receive and compile all the subcontractor's bids to make a complete package to submit to the owner. Now, working as a subcontractor my whole career, I have not witnessed it myself; but I understand it is something to behold: Full of drama, pathos, excitement, exasperation, and elation.

I thought it would be interesting to write about estimators' experiences. We all have stories to tell. Someday, I may even call you to get yours.

My first one comes from personal experience. Quick background on me: I have been a spray fireproofing estimator for over 35 years, and I do not have a college degree.

I was asked to price up insulating the underside of a half-dozen huge digester tanks for a wastewater treatment system on a peninsula out past Boston Harbor. Boston had finally decided to stop dumping their waste directly into the Harbor, and send it farther out to sea to Deer Island, treat it, then release it. Good for all concerned.

Although I pride myself on my math skills, these weren't simple spheres, but more egg-shaped, with support fins, about 90 feet in diameter and 130 feet high. I wasn't confident in calculating the total square footage for the estimate, so I asked the General Contractor (who will remain nameless) to provide me with the total surface area.

The GC sent me their information. I priced it up and submitted my estimate, got the contract, and proceeded to perform the work.

After completing the first one, we were way over on material – 30% over! We verified thicknesses, checked waste, checked densities, and couldn't figure it out. We proceeded with the next one. Same result.

I contacted the GC and told them our predicament, who assured me that we must be at fault. Third tank, same problem. I requested a copy of their backup paperwork for determining the square footages.

I was then sent 20 pages of engineer's calculations – including graphs and sketches and columns of calculations. Very daunting, and how could I prove that engineers were wrong?

I poured through them for days. The formulas looked right, the calculations appeared correct, but then there it was … a simple math error. They had neglected to add one of the calculations to the totals. I provided the GC my adding machine tape and received a substantial change order. ET

Lesson Learned: Don't be intimidated and don't give up !

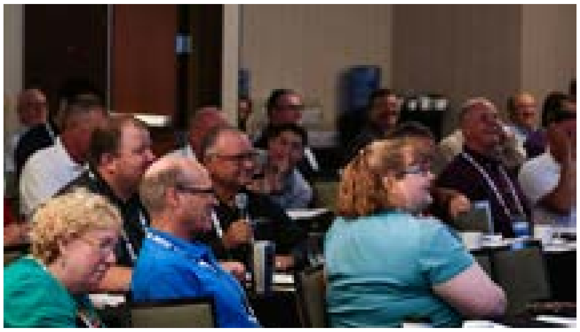
Get Connected

Heather Boulanger
Denver #5
heather@rollingplains.com

Join Us in 2018 and discover the.....

Pittsburg Experience!

Developing the next Estimator



GROW

With thoughtful and insightful educational sessions and engaging speakers addressing new and diverse challenges, Developing the Next Estimator is the 2018 Annual Summit theme and focus !

CONNECT

Renew relationships, become better acquainted with industry experts, and learn about the newest products and software trends by connecting with ASPE Summit Exhibitors, Sponsors, and your fellow Estimators !

CELEBRATE

Share experiences and war room stories, discuss the days' activities, and celebrate the year's accomplishments (by Chapters and your fellow Estimators) at the 2018 Awards Dinner and at the President's Dinner !

June 27-30, 2018

Wyndham Grand Hotel

Registration Open February 2018

AMERICAN SOCIETY OF PROFESSIONAL ESTIMATORS

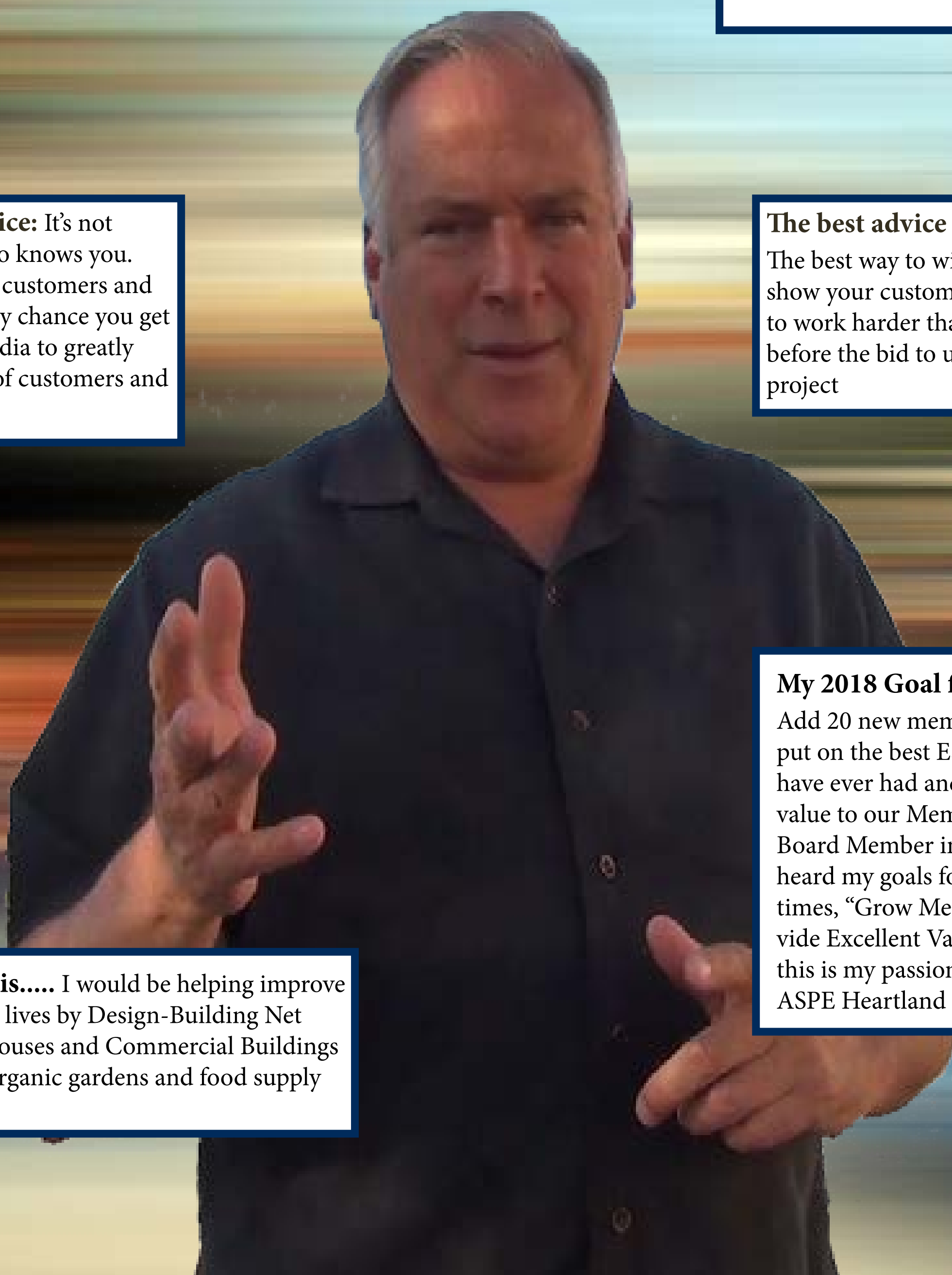
PITTSBURGH 2018

The Faces of ASPE

Introducing .....

Eric Soriano
Heartland #32 Chapter President
Hermes Landscaping, Inc.
Commerical Sales

The best advice I share with young Estimators: Surround yourself with experts and drink out of the fire hose of knowledge and never stop learning about your trade



My best general advice: It's not who you know, but who knows you. Get out and meet your customers and clients face to face every chance you get and leverage Social Media to greatly expand your universe of customers and contacts

The best advice I ever received: The best way to win work is to show your customer you are willing to work harder than anyone else before the bid to understand their project

My 2018 Goal for Chapter 32: Add 20 new members to the Chapter, put on the best Estimating Events we have ever had and provide excellent value to our Membership". Every Board Member in Chapter 32 has heard my goals for our chapter many times, "Grow Membership and provide Excellent Value to our Members", this is my passion as President of ASPE Heartland Chapter 32

If I wasn't doing this..... I would be helping improve the quality of people's lives by Design-Building Net Zero Houses, Greenhouses and Commercial Buildings with self-sustaining organic gardens and food supply

ProEst®

ASPE Sponsor
www.proest.com/aspe
800.255.7407

An Incredible Offer for ASPE Members

ProEst software, an official sponsor of ASPE, is pleased to offer all current ASPE members a ProEst software subscription that includes:

- ProEst Estimating Software (Enterprise Version) with digital takeoff technology.
- 6 classes of ProEst Estimating Training (Web-based classes for ASPE members held once a month).
- ProEst Data Conversion.
- Worry-Free Maintenance that includes unlimited telephone support and software updates.

A $4,085 retail value – for only $995 annually. A savings of more than $3,000!

To order your ProEst Enterprise software subscription and training package, simply visit www.proest.com/aspe or call 800.255.7407 today!

Intuitive User Interface

One SQL Database

Integrated Digital Takeoffs

Welcome New Members!

Member	Company	Chapter
Max Skwat	Cumming	San Diego 4
Owen Smith	Smith Construction Estimating	Denver 5
Mehiar Mehran	Hensel Phelps Construction Co.	Denver 5
Tom Deir	BluSky Restoration Contractors	Denver 5
Surya Singh	The Rinaldi Group LLC	New York 10
Anthony Davis	University of Houston	Houston 18
Kyle Waters	Phoenix Engineering Inc.	Baltimore 21
David Anderson	KBS Constructors	Heartland 32
Vianca Martin		Heartland 33
William Fenton		Heartland 34
Sam Robinson	Dredge America, Inc.	Heartland 35
Adam Cunningham	Baldwin & Shell Construction	Arkansas 33
Emily Grant	Baldwin & Shell	Arkansas 33
Kevin Fink	Baldwin & Shell	Arkansas 33
John Lefler	Baldwin & Shell	Arkansas 33
Tiffany Henry	Baldwin & Shell	Arkansas 33
Maggie Estes	Baldwin & Shell	Arkansas 33
Larry Hiegel	Baldwin & Shell	Arkansas 33
Tyler Hill	UALR	Arkansas 33
Cody Stringer	University of Arkansas at Little Rock	Arkansas 33
Kevin Chapman		Arkansas 33
David Isaacs		Arkansas 33
Cody Davison		Arkansas 33
Justin Warren		Arkansas 33
Ryan Kaiser		Arkansas 33
Grant Fletcher		Arkansas 33
Hobart Hollowell	Darana Hybrid	Southwestern Ohio 38
Irma Veloz-Mason	Environmental Reconditioning	Rio Grande 40
Stephens Bedford	JE Dunn Construction	Dallas/ Ft. Worth 43
Carlos Ranon	Ranon, Inc.	Tampa Bay 48
Nicholas Kappitt		Golden Gate 49
Brad Matt	Baker Group	Des Moines 73
William Sheehan		Delaware 75
Jason Suppe	R.C. Fabricators, Inc.	Delaware 75
Christopher McCormick	Vertical Limit Construction	CP MAL 92

the take-off .....

Certification Journal: A CPE's Certification Journal is an important tool that is always available (and at your fingertips)! The Certification Journal can be found on the ASPE Website at ......
Members Only / Certification Journal

CPE – Stamp + Seal: If your requirements change (or it is time for an update), the process to order a new Stamp or an electronic Seal is available on the ASPE Website at ....
Certification / Applications + Brochures / CPE Application / CPE Stamp + Seal Program

Bylaws: New Bylaws have been approved and are available for the following organizations.
* American Society of Professional Estimators, Inc.
* American Society of Professional Estimators Foundation, Inc.

The Bylaws replace all earlier versions and are available on the ASPE Website at ....
Members Only / ASPE Bylaws

SBO Corner

Annoucements!

ASPE Incorporation: **If you weren't present at the Annual Summit, please note that ASPE has chosen to reincorporate; and Articles of Incorporation are complete and Bylaws approved. Although the changes will be invisible to you, this decision by the Board identified a more favorable tax and regulatory environment available in Delaware, allowed ASPE to adjust our Fiscal Year to a Calendar Year, and created the following two (2) entities.**

American Society of Professional Estimators, Inc. [501(C)6 Organization]
(Non-Profit Organization with emphasis on Education)

American Society of Professional Estimators Foundation, Inc. [501(C)3 Organization]
(Non-Profit Charitable Organization / Scholarship Entity)

Certification Program Update: **With resignation of a staff member, our recruiting efforts identified a new member of the ASPE family. Cinder McDonald will join ASPE effective October 9 as Certification Committee Coordinator. Please be patient as we welcome Cinder and she immerses herself into all aspects of the Certification program.**

Membership Directory: **If you missed the Announcement in the August / September edition of Estimating Today, ASPE is preparing a Membership Directory for mailing to all members in good standing for delivery @ January 1, 2018. Please log into the ASPE Website and update your Profile no later than November 15 to be included in the Directory.**

Membership Directories returned to SBO due to an incorrect address will not be resent.

Please contact Elaine Cersosimo, Director of Operations, with any questions regarding these Announcements.

CHAPTER MEETINGS

ARIZONA

Arizona #6
Where: Double Tree Hotel
320 N 44th Street
Phoenix- 85008
Date: 2nd Tuesday
Time: 5:30 Social Hour
Meeting Contact:
Marvin Blau
aspe6treasurer@gmail.com

Old Pueblo # 53
Where: Varies
Date: 1st Wednesday
Time: 5:30 Hour
Meeting Contact:
Trip McGrath, CPE
tripm@compusultinc.com

ARKANSAS

Arkansas # 33
Where: Baldwin & Shell
1000 West Capital Ave.
Little Rock -72201
Date: 3rd Friday
Time: 12: 00 Social Hour
Meeting Contact:
Chuck Garrett, CPE
cgarrett@baldwinshell.com

NW Arkansas # 79
Information not submitted
Contact: Southeast Governor
Chuck Hesselbein, CPE
chesselbein@baldwinshell.com

CALIFORNIA

Los Angeles # 1
Where: The Barkley Restaurant
1400 Huntington Drive
South Pasadena - 91910
Date: 4th Wednesday, Jan.-Oct.
Time: 6:00 pm Social Hour
Meeting Contact:
Bruce Danielson
la1ofaspe@outlook.com

Golden Gate # 2
Where: To Be Determined
Date: To Be Determined
Time: 6pm Social Hour
Meeting Contact: Gustav Choto
gchoto@buildingpointpacific.com

Orange County # 3
Where: Ayres Hotel
325 Bristol Ave.
Costa Mesa - 92626
Date: 2nd Wednesday
Time: 5:30 PM
Meeting Contact: Tom Smithson
tedwardsmithson@gmail.com

San Diego # 4
Where: Varies
Date: 3rd Tuesday
Time: 5:30 Social Hour
Meeting Contact:
Mike Moyers, CPE
michael.moyers@bestinteriors.net

Sacramento # 11
Where: Rancho Cordova City Hall
2729 Prospect Park Dr.
Rancho Cordova - 95670
Date: 2nd Friday
Time: 12:00 pm Social Hour
Meeting Contact: Jared Wright
jwright@fllintbuilders.com

Silicon Valley # 55
Where: Varies
Date: Varies
Time: Varies
Meeting Contact:
Alan Jacobs, CPE
alan.jacobs@blach.com

COLORADO

Denver # 5
Where: Urban Roadhouse
999 18th Street Suite 101
Denver - 80202
Date: 2nd Tuesday
Time: 5:00 PM
Meeting Contact:
Matthew Rasmussen
mrasmussen@henselphelps.com

CONNECTICUT

Nutmeg # 60
Where: Back Nine Tavern
245 Hartford Rd.
New Britain - 06053
Date: Contact Harrison Levy
Time: 6:00 PM
Meeting Contact:
Harrison Levy
klevy@petraconstruction.com

Yankee # 15
Not Actively Meeting

DELAWARE

Delware # 75
Information not submitted
Contact: Northeast Governor
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

DISTRICT OF COLUMBIA

Greater D.C. # 23
Where: Jacobs
1100 North Glebe Rd., Ste 12
Date: 3rd Thursday
Meeting Contact:
Maurice Touzard, CPE
mtouzard@gmail.com

FLORIDA

Tampa Bay # 48
Where: Lee Roy Selmons
4302 W. Boy Scout Blvd.
Tampa - 33607
Date: 3rd Wednesday
Time: 6:00 PM
Meeting Contact:
Bob Nidzgorski, CPE
bob.nidzgorski@skanska.com

Gold Coast # 49
Information not submitted
Contact: Southeast Governor
Chuck Hesselbein, CPE
chesselbein@baldwinshell.com

Orlando # 50
Where: TBD
Date: TBD
Time: TBD
Meeting Contact:
Danny Chadwick, CPE
dkchadwick@bellsouth.net

GEORGIA

Atlanta # 14
Where: Sage Woodfire Tavern
4505 Ashford Dunwoody Rd
Atlanta - 30346
Date: 2nd Monday
Time: 11:30am Social Hour
Meeting Contact:
Clinton Aldridge
clinton.aldridge@skanska.com

ILLINOIS

Chicago # 7
Where: Barbakoa Tacos & Tequila
1341 Butterfield Rd
Downers Grove - 60515
Date: 3rd Thursday
Time: 6:00pm Social Hour
Meeting Contact:
Bob Svoboda, CPE
bsvoboda@ccsdifference.com

INDIANA

Central Indiana
Where: Varies
Date: 3rd Thursday
Time: Varies
Meeting Contact:
Noelle Cichy
ncichy@summitconst.com

Old Fort # 65
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

IOWA

Quad Cities # 71
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Greater Des Moines # 73
Where: Varies
Date: 3rd Thursday
Time: Varies
Meeting Contact: Nicholas Gehl
nicholas.gehl@weitz.com

LOUISIANA

New Orleans # 9
Information not submitted
Contact: Southeast Governor
Chuck Hesselbein, CPE
chesselbein@baldwinshell.com

MAINE

Maine # 37
Where: Woodard & Curran
41 Hutchins Drive
Portland - 04102
Date: 1st Wednesday
Time: Varies
Meeting Contact:
John Brockington, CPE
jbrockington@woodwardcurran.com

MARYLAND

Baltimore # 21
Where: Varies
Date: Varies
Time: Varies
Meeting Contact:
Ed Cluster, CPE
ecluster@phoenix-eng.com

Massachusetts

Boston # 25
Information not submitted
Contact: Northeast Governor
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

Michigan

Detroit # 17
Where: Visit www.aspe17.org
Date: Varies
Time: Varies
Meeting Contact:
Mel Oakley, LCPE
oakleymel@gmail.com

Western Michigan # 77
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Minnesota

Viking # 39
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Missouri

St. Louis Metro # 19
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Heartland # 32
Where: Uncle Buck's Grill or Bass Pro Shops -See meeting contact
Date: 3rd Wednesday
Time: 5:30 PM
Meeting Contact:
Eric Soriano
esoriano@hermeslandscaping.com

Nebraska

Great Plains # 35
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Nevada

Reno # 12
Information not submitted
Contact: Northwest Governor
Kris Larson
klarson@cccutah.com

Las Vegas # 72
Information not submitted
Contact: Southwest Governor
Larry Hendrick, CPE
lhendr6899@aol.com

New Jersey

Garden State # 26
Where: Email for Location
Date: 4th Tuesday
Time: Varies
Meeting Contact:
Jeffery Senholzi
costnav@ptd.net

New Mexico

Roadrunner # 47
Where: Fiestas Restaurant
4400 Carlise Blvd. NE
Albuquerque - 87107
Date: 1st Wednesday
Time: 5:30 Social Hour
Meeting Contact:
Joshuah Crooker-Flint, CPE
joshc@auiinc.net

New York

New York # 10
Not Active

Empire State # 42
Where: Athos Restaurant
1814 Western Ave
Albany - 12203
Date: Varies
Time: Varies
Meeting Contact:
James Madison, CPE
jmadison@arriscontracting.com

Western NY # 77
Information not submitted
Contact: Northeast Governor
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

Ohio

Buckeye # 27
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Southwestern Ohio # 38
Where: Varies
Date: 3rd Thursday
Time: Varies
Meeting Contact:
Kevin Gilbert
kgilbert@hgcconstruction.com

Oklahoma

Landrun-OK City # 80
Where: Ingrid's Kitchen
3701 N. Young Blvd
Oklahoma City - 73112
Date: 1st Wednesday
Time: 11:30 am Social Hour
Meeting Contact: Ed Harris
ed.harris@dormakaba.com

Oregon

Columbia-Pacific # 54
Where: University Place
310 W. Lincoln St.
Portland - 97201
Date: 3rd Tuesday
Time: 5:30 PM
Meeting Contact:
Craig Welburn
cwellburn@cherrycityelectric.com

Pennsylvania

Greater Lehigh Valley # 41
Information not submitted
Contact: Northeast Governor
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

Three Rivers # 44
Information not submitted
Contact: Northeast Governor
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

Philadelphia # 61
Where: Varies
Date: 3rd Wednesday
Time: Varies
Meeting Contact:
Karla Wursthorn, CPE
kwursthorn@tnward.com

Central Pennsylvania # 76
Where: Loxley's Resturant
500 Centerville Road
Lancaster - 17601
Date: 2nd Wednesday
Time: 6:00pm Social Hour Starts
Meeting Contact:
Dan Dennis, CPE
dd@EGSConstruction.com

Tennessee

Middle Tennessee # 34
Where: Adventure Science Center
800 Fort Negley Blvd.
Nashville - 37203
Date: 1st Friday
Time: Varies
Meeting Contact: Ricky Sanford
rsanford7159@hotmail.com

Texas

Houston # 18
Information not submitted
Contact: Southwest Governor
Larry Hendrick, CPE
lhendr6899@aol.com

Rio Grande # 40
Where: West Texas Chop House
1135 Airway Blvd.
El Paso - 79925
Date: 1st Thursday
Time: 6:00 PM
Meeting Contact:
Rodolfo Barba, CPE
rodolfobarba1@gmail.com

Dallas/ Ft.Worth # 43
Where:
14500 Trinity Blvd. Ste. 106
Forth Worth - 76155
Date: 3rd Tuesday
Time: 6:30 PM
Meeting Contact:
Rick Wyly, CPE
rick.wyly@gmail.com

Utah

Salt Lake City # 51
Where: Varies
Date: 3rd Thursday
Meeting Contact:
Phil Capell, CPE
president@aspe51.org

Virginia

Richmond # 82
Where: Baskervill
101 South 15th Street Ste. 200
Richmond - 23219
Date: 4th Wednesday
Time: Varies
Meeting Contact: Jacob Dyer
jacob@gulfseaboard.com

Washington

Puget Sound # 45
Information not submitted
Contact: Northwest Governor
Kris Larson, CPE
klarson@cccutah.com

Wisconsin

Brew City # 78
Information not submitted
Contact: Central Plains Governor
Keith Parker, CPE
keithparker@circlebco.com

Please NOTE: Information is subject to change.

Report changes in your Chapter's information with an email to **jennifer@aspenational.org**

ASPE Industry Awards

Best Estimate

The ASPE Industry Best Estimate Award is given to the entry in its sub-category that displays the best overall estimate of a proposed project across any sector. Benchmarks can include, but are not limited to the following.

- Estimate Efficiency
- Estimate Accuracy, Budget and Materials
- Revisions
- Client Satisfaction
- Tools and Technology Used
- Solutions for Unexpected Challenges

Best Project

The ASPE Industry Best Project Award is given to the entry in its sub-category that displays a combination of excellence across the entire scope and process of the project submitted. Benchmarks can include, but are not limited to the following.

- Budget Control
- Safety, Staff and Environmental
- Value to the Community
- Project Management
- Team Work
- Materials Efficiency
- Project Innovations
- Use of Advanced Techniques/Software

Most Innovative Project

The ASPE Industry Most Innovative Award is given to the entry in its sub-category that displays the most unique and innovative benchmarks across the entire scope and process of the project submitted. Benchmarks can include, but are not limited to the following.

- Innovative Design Build
- Creative Design Build
- Technology Elements of Project
- Technology Solutions
- Green Innovation
- Community Involvement
- Addressing Environmental or Coding Concerns

All Entries Must Include a Project Narrative

Your narrative must not exceed a maximum of 750 words. The narrative should focus on why the project should be considered the best in its category. This information will also be used for the award presentation should you win an award. Note: The descriptions of each of the required elements are meant to be used as guidelines. You should interpret all criteria based on your own unique project submission and respond accordingly.

Visual Presentation:

While points are not awarded for the visual presentation, the photos may impact your entry in that they help to tell your story. Support your narrative with photos that show the scope and process of the project and any challenges described in the narrative. You may include up to 3 photos in your project submittal.

NOTE: ASPE reserves the right to adjust categories based on number of submissions received.

Three ASPE Industry Award Categories:

Each award is separated by project catagories that are defined by project budgets and final costs. They are the same classifications for all three awards.

o Projects Under $5 million
o Projects Between $5 million and $10 million
o Projects Above $10 million

Start Planning Today for 2018 Annual Summit in Pittsburgh!