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A member is defined as "one of the persons who compose a social group (especially individuals who have joined and participate in a group organization)" (wwwdefinitionsnet). People join organizations for different reasons. Some just want to be able to say they belong to something while others want to actively make a difference in the mission of the organization. Regardless of a member's purpose in joining, each individual member is important to ASPE. ASPE is a member organization - it's purpose is to actively represent the membership within the construction industry and to promote the career of estimating while at the same time providing value to individual members.

Membership in ASPE provides an opportunity to participate in a network of estimators. There is tremendous value in the fellowship of our peers. Talking to other members about our day-to-day jobs validates processes we are employing and helps us develop more efficient ways of working. It is edifying and fun to be around people who understand the demands and challenges of our profession.

Membership demonstrates your commitment to being connected to your profession. Your membership in ASPE shows potential and current employers and clients that you have made a commitment to the practice of estimating. Listing your ASPE membership on your resume sets you apart and signifies your dedication to the industry.

ASPE offers opportunities to broaden your knowledge and stay abreast of best practices. Through chapter and regional meetings, online courses, Estimating Today, and the Summit, ASPE offers educational sessions to keep you informed of innovations and trends. ASPE also offers the ability to share your acquired knowledge and pass on what you've learned in your career to others.

There is strength in numbers. The more members we have, the more we are can accomplish and the more influence we have in the construction industry. In looking to modernize ASPE and increase our membership, we must clearly define our value proposition and offer more in exchange for our membership dues. I am asking you to let me know how you derive value from your membership and what we can offer that would enhance that value. Please contact me directly to share your ideas to increase ASPE's value proposition.
Making a Difference
Your Guide to Chapter Membership, Recruitment, and Retention

By: ASPE Society Business Office

A chapter is built member by member. Each prospective member needs to become a major recruitment endeavor. This type of recruiting takes a special commitment of time and energy and is almost always accomplished one on one. The overall chapter recruitment effort ideally should be one member’s responsibility, one person’s obsession. Sometimes it takes several years to bring a person into a chapter. Never give up!

Establish a Membership Goal
Set a membership goal and reach for it. Saying, "We really need to recruit some new members this year" will not be as effective as saying, "Let’s strive for 10 new members this year."

Maintain Records
Keep a list of prospective members. Invite these people to chapter meetings and especially to the social receptions and events. Social interaction can be a key factor in encouraging people to join.

Expand Recruitment Sources
Search the internet including social networks for names of people in the community who could contribute to the Society or benefit from membership. Bear in mind that not all members must be estimators. Some of the most loyal and hard-working chapter members are people who are employed in a construction-related field. Look for these people; they are not hard to find. They add a special dimension to a chapter and a viewpoint that is important.

Promote Recognition
Wear name tags at chapter meetings to distinguish visitors from members. Be eager to extend the hand of fellowship to make each person sincerely feel special, wanted, and needed. These are the three keys to recruitment and retention.

Extend Recruiting Borders
Don’t limit your chapter recruiting to one geographical area. Think big and reach out as far as you can. Even if the new member may not become a member of your chapter, they may join the Society with membership to another chapter or as a member-at-large.

Recruitment E-blast
The chapter recruitment e-blast should include a cover letter, link to National and Chapter website, and a calendar of events for the year. A warm and informative cover letter is essential. Include in the letter a listing of some of the benefits of ASPE chapter membership, such as:

1. A subscription to the chapter’s newsletter, as well as to Estimating Today.
2. Regular programs and workshops designed to increase members’ knowledge and skills.
3. Regional and National Meetings that provide educational opportunities.
4. Networking with local colleagues of all levels of interest and expertise.
5. Become recognized as a Certified Professional Estimator (CPE) through the completion of our program.
6. Membership in a professional society which promotes the highest standards and ethics in the practice of construction estimating.
Follow-up telephone calls are important, as well as leaving prospective members on the chapter e-blast list for several months after the initial contact.

**Welcome New Members**

After successfully recruiting a new member, send a warm email of welcome. Work to make each person feel important and essential to the chapter. The retention of members is vitally important. Quickly add new members to your chapter’s e-blast list. Have someone in your chapter call and invite them to the next meeting. Be sure someone at that meeting is assigned to host them and introduce them to other members. Send information on each new member to your newsletter editor for inclusion in an upcoming issue. Make them welcome. They’ve made the decision to join your chapter. Now it’s up to you to keep them.

**Retention**

Be sure the chapter programs meet the needs of the collective membership. Find out the needs of your chapter members, then seek to fulfill them. Programs must be interesting, appealing, organized, and exciting.

Socializing is an integral activity of any chapter, but it cannot be the focal point. People will not drive 50-60 miles for a social gathering month after month, but they will drive that distance for a worthwhile program, and they welcome the chance to gather for a little while to visit with each other. A time for fellowship is important, particularly in chapters where, because of geographical distance, members see each other only at meetings.

**Make Members Feel Special**

The following are a few ideas to help you retain members:

Have officer(s) go around to each member present at a meeting and extend the hand of fellowship. Make each person sincerely feel special, wanted, and needed.

Recognize members who have received honors with congratulatory notes or cards.

Send out a monthly e-blast that is more than just a listing of events. It does not need to be long, but it does need to reflect the vitality, professionalism, and positive aspects of the chapter. Members reading a monthly e-blast need to experience the same warmth, concern, and commitment they would feel at a meeting.

Establish a telephone brigade or send emails to remind members of upcoming meetings, to encourage attendance, to see if anyone needs a ride, to learn of chapter member illnesses, or to call off a meeting because of inclement weather or some unforeseen circumstance.

Approximately one week before the deadline for renewal of dues, call all members who have not responded to remind them. It is always amazing how many people overlook the renewal email, forget the deadline, or think they have already renewed.

Be sure that thank-you notes go out after each meeting to the person/persons who presented the program, hosted the meeting and/or provided food. Encourage the participation and support of members’ spouses and partners. Welcome them to meetings and invite them to the Christmas party or other social events. Their support is invaluable.

* * *
ASPE Annual Awards

Categories of Awards

- Estimator of the Year
- Chapter President of the Year
- Fellow Award (FCPE)
- Legacy Awards
  - Howard S. Prout Founder of Certification
  - Frank E. Young Excellence in Education
  - Merle W. Heckenlively Founder of Standards
- Chapter Champion
- Technology
- Chapter Achievement
  - Bronze
  - Silver
  - Gold
  - Platinum

Intent to Submit is Due March 15
Click Here for more information
Writing this article for Estimating Today was a journey that started when I came across a quotation from President Theodore Roosevelt (1908), “Every man owes a part of his time and money to the business or industry in which he is engaged. No man has a moral right to withhold his support from an organization that is striving to improve conditions within his sphere.” The American Society of Professional Estimators (ASPE) is such an organization. ASPE strives to improve conditions within “our sphere,” the field of estimating. Inspired by the words of President Roosevelt spoken 109 years ago, I would like to see renewed enthusiasm and dedication from the members to the ASPE organization which in turn will benefit the profession as a whole. The mission statement of ASPE states that the organization “serves construction estimators, by providing education, fellowship, and opportunity for professional development.” By rededicating our efforts in each of these areas and by promoting the organization to non-members, we can greatly improve conditions within “our sphere.”

Educational opportunities can take many forms. By organizing Estimating Summits on a regular basis, we can maintain the skills and knowledge needed by our membership. These events will allow the organization to be known as a valuable resource for developing new skill sets. Providing skills needed by estimators to stay current in their field is a great resource to the construction industry. Teaching is a great opportunity for a member to give back to the industry and profession that has been good to them. Teaching opportunities exist at the university and college level. This is where one can get our profession in front of students to encourage and mentor them towards a professional career in estimating. Our organization is uniquely qualified to define the basic skills needed to start a young graduate on a career in estimating. Being in the profession we know what skills are needed as the profession continually changes and adapts to the market and to new technologies that become available.

Fellowship of members is a common tie that binds us together as a professional organization. During fellowship or networking opportunities at ASPE meetings we get to know the expertise, strengths and talents of our fellow members.

Professional development can be the cornerstone in our career. Earning the Certified Professional Estimator (CPE) designation can accelerate or elevate your career to a new level. The CPE designation is the highest form of professional recognition an individual estimator can receive. This level of achievement and commitment benefits the entire “sphere” of our profession.

It is the obligation and responsibility of each member to encourage others in our industry to become members to advance the knowledge and professionalism of individuals practicing estimating within the entire “sphere” of our profession. By working together we can improve ourselves and our profession. I encourage everyone to make the effort to promote our organization to others. This will strengthen our membership and make ASPE a leading entity in the construction industry.

Member Perspective
By: Eric Ross

I challenge each of you to look for opportunities to serve our professional organization. There are opportunities in ASPE at the Local, Regional and National level. There is always a need for volunteers to support our organization. Working together we can strengthen the ASPE organization and in turn “improve conditions within our sphere,” the estimating profession.

― President Theodore Roosevelt (1908)

Eric A. Ross, PE, CPE, CSI, CCCA, PMI, is a Senior Implementation Consultant with RIB. He has over 30 years of experience in the construction industry, encompassing field management, design, engineering, estimating and estimating system development. He is a licensed Professional Engineer, and a Certified Professional Estimator. Among his professional activities include: membership in American Society of Civil Engineers; American Society of Professional Estimators, American Railway Engineering and Maintenance-of-Way Association (AREMA), Construction Specifications Institute, National Society of Professional Engineers, and Project Management Institute. Eric is an active member of ASPE Denver Chapter #5.
**Introduction**

This paper intends to describe the general process of utilizing BIM software to prepare parametric, early-stage estimates. The nature of this topic does not lend itself to a full step-by-step approach due to myriad project types and nuances. The overarching paradigm presented herein closely reflects that utilized by the D-Profiler software platform; however, the general approach can be applied to multiple software combinations. A full description of this software is beyond the intent of this paper.

**Main CSI Division:** Division 1 – General Requirements

**Specific Sub-Division:** 01 11 31.50 Models

**Brief Description of Subject Matter:** Building Information Modeling or “BIM”, is no longer new technology; it is now incorporated during the construction phase of many projects. However the application of BIM during the early stages of construction (conceptual through schematic) is a relatively new paradigm and hence involves a very different approach. The fundamental process is similar to traditional parametric estimating, but relies on computer-generated cost drivers that can be manipulated quickly to update a cost estimate real-time. A properly-built cost estimate relying on this paradigm focuses the estimator’s efforts in order to maximize efficiency.

**Types and Methods of Measurement**

Understanding the basic steps of parametric estimating in general is crucial in leveraging concept-level BIM software. The term “parametric estimating” implies the method of utilizing a very small number of known variables (such as the overall project area, number of floors or systems descriptions for example) to drive both scope and costs by relating those back to historical data. The estimator begins this process by first documenting all known variables, in order to segregate them from unknown variables. While more variables help hone cost to a closer degree of accuracy, there are four variables that are always required in order to generate a meaningful estimate: location, function, overall area and number of floors. Without these baseline variables, there is no context for the derived cost; and therefore, they must always be considered mandatory.

After the baseline variables are defined, the next step is to identify key cost drivers that will have a major impact on overall cost output. While there is no standard definition for what these drivers are, examples include identification of mechanical and electrical systems, determination of floor-to-floor building height as well as building perimeter, assumption for ratio of façade finish materials, and adjacency to existing building (just to name a few). This step not only flushes out additional detail crucial to the overall cost and context, but also forces the estimator to focus the effort on variables which directly influence the majority of the costs.

After key cost drivers are determined, the next step in parametric estimating is to make considerations for the balance of scope that cannot yet be defined; this critical step fills in information gaps that might otherwise be overlooked. Undefined scope plugs range from the detailed (e.g. one fire extinguisher cabinet for every 2,500 sf of area) to the broad (e.g. $75 / sf of interior fit-out cost). Sometimes the act of determining the methodology for
filling in gaps indirectly elicits new cost drivers (e.g. if the estimator decides that a $/sf fit-out approach won’t suffice in the lobby because of a water feature, that water feature may become a segregated cost driver). The level of detail associated with these logic-plugs is directly proportional to the amount of information available.

INTEGRATING BIM INTO PARAMETRIC ESTIMATING

Generally, utilizing BIM software in the parametric estimating process follows the exact same methodology as the parametric method described above, however substitutes modeled graphics for the baseline variables and key cost drivers, while at the same time pulling historical information / ratios for all non-defined scope. While several BIM platforms exist in the market (Revit, Tekla, ArchiCAD, Bentley, Sketchup, and others), the only product that focuses solely on application during the early conceptual phases is D-Profiler by Beck Technology. D-Profiler is a conceptual modeling tool which relies on user-defined databases in conjunction with simple graphical representation to parametrically model costs.

Although “BIM” software conjures up sleek images of sophisticated models and renderings (thus showcasing the “M” of “Building Information Modeling”), the key to the applicability of BIM during conceptual stages is actually the information contained in the databases, or the “I.” The database links the modeled parameters with the applicable line items, often in conjunction with variable ratios. For example, the building perimeter directly drives the linear footage of firesafing, while the gross floor areas of level one directly links to the slab on grade finish area.

A helpful analogy is that modeling construction level documents using a tool like Revit can be thought of as building a statue with Legos™ (compiling brick-by-brick until the whole work is complete). In comparison conceptual estimating using a tool like D-Profiler can be thought of as carving a sculpture from a block of ice (in other words, starting with an already “complete” starting point and honing the shape to later provide detail and definition). The difference showcases how the latter process focuses on an “outside-in” approach based first on broad-strokes and last on detailed refinement.

The first step of defining baseline variables is accomplished primarily by means of simple geometric modeling. The overall shape determines building area, the proximity of this shape determines adjacency to existing building(s) if applicable, and the measured vertical gridlines determine floor-to-floor height as well as number of floors. The selected building type determines the function (e.g. school vs. hospital), and finally the chosen database determines geographic project location. Accomplishing these steps satisfies the four baseline variable requirements.

Initial modeling effort required to define the four mandatory baseline variables.
From here, key cost drivers are assigned to further refine the model. Façade ratios can either be applied to the exterior envelope (e.g. North façade = 60% brick veneer system, 10% metal panel system, 30% punched window system) or actually “painted” on if specific patterns are known. Site elements such as parking areas, stall count, landscaped areas, canopies, pedestrian footpaths, etc. are also modeled.

“Painting” the façade on to the model to define skin assemblies, and thus flushing out a key cost driver

Certain key cost drivers which cannot necessarily be graphically modeled are chosen as user-defined variables. For example, a 4-pipe hydronic VAV system rather than chilled beam HVAC system is controlled by a single variable to indicate the selected system. A similar numeric value determines if upper floor assemblies are slab on metal deck or post-tensioned concrete. Likewise, various exterior canopy types (e.g. standing seam metal canopy vs open-framed lumber) toggle via user-defined variables rather than detailed modeling.

While the ratios contained in the parametric database will populate the estimate with initial values, these must be checked and potentially modified. For example, the automatically-generated elevator and stairwell count are verified and adjusted if necessary. Likewise, exterior door counts that are initially populated with “typical” values are adjusted to match project-specific requirements. This step involves an iterative “honing” that not only refines the model but also garners key discussion and decisions. Often this discussion occurs organically as a result of reviewing and adjusting the initial default quantities.

During this process (which can often be accomplished during a relatively short design charrette), the team should take note of which assumptions are generally agreed-to compared with which assumptions are precarious leaps of faith. This not only helps isolate risk, but also documents team consensus throughout the process. One-off scope (such as rock-blasting, asbestos abatement, ground water contamination mitigation, etc.) will not be automatically populated into the model, and therefore requires discussion to ensure that scope is adequately captured as a lump sum line item.

THE DATA BEHIND THE MODEL

The efficacy of parametric BIM estimating depends entirely on the quality and completeness of the linked database. Every organization should carefully review how their database functions to ensure its methodology mirrors the logic behind traditional estimating practices. The database is essentially the DNA of a parametric BIM estimate, directing how the model’s properties link to build detailed assemblies.
In the example below (chosen for its simplicity) the area of exterior brick veneer drawn onto the skin of the model drives 8 estimate line items:

<table>
<thead>
<tr>
<th>Classification ID</th>
<th>Description</th>
<th>Formula</th>
<th>Unit of Measure</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>04.71.00 0001</td>
<td>Brick veneer</td>
<td>Area</td>
<td>S.F.</td>
<td>43.76</td>
</tr>
<tr>
<td>09.22.00 0002</td>
<td>Exterior metal stud framing, 5&quot; 18 ga at 16&quot; O.C.</td>
<td>Area</td>
<td>S.F.</td>
<td>10.14</td>
</tr>
<tr>
<td>08.16.00 0001</td>
<td>Exterior walls, densglas</td>
<td>Area</td>
<td>S.F.</td>
<td>2.83</td>
</tr>
<tr>
<td>07.21.00 0001</td>
<td>R-19 batt insulation, exterior walls</td>
<td>Area</td>
<td>S.F.</td>
<td>1.28</td>
</tr>
<tr>
<td>09.29.00 0001</td>
<td>5/8&quot; thick gypsum board X, finished, interior of exterior</td>
<td>Area</td>
<td>S.F.</td>
<td>3.53</td>
</tr>
<tr>
<td>09.91.00 0005</td>
<td>Paint walls</td>
<td>Area</td>
<td>S.F.</td>
<td>0.82</td>
</tr>
<tr>
<td>01.54.00 0001</td>
<td>Scaffolding</td>
<td>Area</td>
<td>S.F.</td>
<td>1.65</td>
</tr>
<tr>
<td>07.25.00 0001</td>
<td>Weather barrier membrane</td>
<td>Area</td>
<td>S.F.</td>
<td>3.00</td>
</tr>
</tbody>
</table>

"Behind the curtains" view of database line items linked to any brick veneer shapes drawn in the model

This example is very straightforward since all quantities are directly linked to the area drawn, however other assemblies are more complex. For example, a single ply roof assembly (shown below) drives 23 different line items. Some items are governed by the area, others by the perimeter, and still others by built-in ratios (such as the Access Hatch Count ratio which by default assumes one roof access hatch per 10,000 square feet of roof area). Still others are toggled on and off depending on a user-defined variable which selects between various structural systems. If this variable is set as structural steel, a combination of logic tied to the model’s drawn properties derives the steel weight, the fireproofing area, the metal deck area, the perimeter edging length, the deck fill volume, the deck finish area, and the deck rebar weight. However conversely, if a cast-in-place concrete structural system is set, this assembly will instead be comprised of concrete volume, formwork area, rebar weights, etc.

The database is filled with many ratios that can all be controlled and modified. For example, the default ratio of motorized window shades to manual window shades is set by default at an arbitrary 20%; however if the team knows a particular project will be closer to a 50% ratio, then a very simple adjustment will flow the logic throughout the entire estimate. A well-built database allows these variables to be easily modified rather than relying on fixed numbers embedded within database equations.

A more complex assembly for the roof system, which hinges on areas, perimeters, user-defined variables, and ratios
Specific Factors to Consider Affecting Takeoff and Pricing

Parametric BIM estimating can be either incredibly efficient or horrendously inaccurate depending on how it is applied. As should be evident from the examples provided earlier, the process is strong in analyzing core and shell geometry, sitework, and high level cost drivers, but weak in analyzing interiors and atypical or inherently unique scope. Therefore it follows that parametric BIM estimating is better suited for new-build projects that have several benchmark references (such as office buildings, schools, medical office buildings, etc.) than for renovation projects, tenant fit-outs, or projects that are very unique in nature (churches, museums, custom homes, etc.). The onus is on the estimator to determine when parametric estimating should or should not be used, and what limitations need to be accounted for throughout its application.

Even though the output from a parametric BIM estimate can be very detailed and nuanced, the estimating effort should focus primarily on the baseline variables and the key cost drivers rather than on vetting out specific scope that does not drive the overall cost (such as the exact count of interior doors). This is integral to the 80/20 rule of thumb, which stipulates how 80 percent of the benefit flows from just 20 percent of the work. For an estimator this means that focusing one’s efforts on the critical variables only (i.e. the 20% of the work) will define the majority of the key cost drivers associated with the final cost (i.e. the 80% of the benefit).

PARAMETRIC BIM SYMBOLICALLY REPRESENTS SCOPE, NOT LITERALLY

Even though BIM tools can provide a very representative graphic depiction of a project, the visualization is symbolic rather than literal. For example, if an exterior canopy is to be priced as a cost per square foot of covered area, then it only matters that the horizontal projection be modeled. Graphically depicting the vertical columns in this case does not impact the costs, and therefore would be purely aesthetic and unnecessary. Likewise if ratios or allowances drive one-off scope (e.g. entry water features, complex porte cocheres, parking equipment, etc.) then the costing of such items can be accomplished simply by means of an added line item in the estimate rather than by graphically depicting a visual model...potentially a very time-consuming process. If the primary intent is to generate an accurate cost estimate, then care needs to be taken to ensure that effort is focused only on cost-drivers, not on aesthetics.

SMALL QUANTITIES VS LARGE QUANTITIES

Databases are built such that they can be applied to all manner of project sizes, both big and small. However, as described later in this paper, care must be taken to critically analyze the final estimate as a whole so that price adjustments are accounted for at either end of the spectrum (both very large projects with excellent economies of scale as well as very small projects that may be skewed by mobilization costs). While in theory it is possible to create databases which build in "trigger points" to account for this, doing so is highly impractical.

GEOGRAPHIC LOCATION

All costs generated through parametric estimating are impacted by the project geography, which is why location is one of the four "baseline" variables noted earlier. The database selection accounts for pricing adjustments for location, and in this manner, material, labor, equipment, and indirect markup can all be handled identically as with traditional estimating methods.

Other regional considerations outside of pricing are also handled by means of separate databases. For example, on healthcare projects in California, structural steel is substantially more expensive than in other states due to standards set by the Office of Statewide Health Planning and Development (OSHPD). This is more than just a price adjustment, and in fact represents a scope adjustment specific to the location. This is the reason why unique, regional databases are so integral to the accuracy of a parametric estimate generated with BIM software.

SEASONAL EFFECT ON WORK

Other than the aforementioned location factor associated with the linked database, there is nothing inherent about the parametric BIM estimating process that allows a deep-dive analysis of seasonal effect on work. Typically due to the early nature of conceptual estimates, this kind of detail would not be explored in great depths, but rather handled with a contingency factor to be carried until design progresses. If certain trades are known early-on to be involved in an adverse season (foundation work in the winter for example) then individual line item pricing can be modified accordingly if the team determines this is a critical cost driver.

Overview of Labor, Material, Equipment, and Markup

By populating estimates with detailed line items rather than high level metrics, the traditional split between material, labor, equipment, and markup is maintained and may be analyzed in exactly the same manner as with a traditionally-measured estimate. Note that some very high level metrics which still rely on a high level cost per square foot approach (such as mechanical and electrical scope) will depend on a percentage-driven split between material, labor, and equipment; however this is the exception to the rule rather than the norm.
Special Risk Considerations

CRITICAL ANALYSIS

Even though there is a substantial degree of automation associated with much of the parametric estimating process, it’s important to never lose sight of the importance critical analysis plays in the overall process. Consider the following example, which depicts two separate scenarios, each where 2,000 sf of “typical wall” is drawn into a model.

Most estimators could quickly identify that the second scenario will warrant a cost premium to account for complex layout, however relying solely on automated BIM estimating will not provide this intuitive analysis. For this reason, output provided by a parametric BIM estimate must be thoroughly reviewed for appropriateness and context.

FILLING IN GAPS AND ELIMINATING AMBIGUITY

The caveat to the “outside-in” method of parametric estimating is that it requires extremely high level cost/scope plugs to account for undefined information. One example to illustrate this point is the building’s façade. Upon the first shaping of the baseline variables, the façade is not yet defined, and therefore requires an estimate line item called “unclad façade area” set to an average skin cost (based on historical averages). This is obviously very ambiguous, and thus defining the skin area becomes one of the first cost drivers to address. As the skin is “painted in”, the unclad façade area quantity tapers towards zero as the defined skin areas increase, thus refining out ambiguity.

In this example, the east face of the building is characterized by defined, drawn façade systems while the south face is characterized by “unclad façade.” As more systems are drawn on the south face, the area quantity of “unclad façade” begins to reduce until it approaches zero.
READING REPORT RESULTS IN PROPER CONTEXT

The end result of this process is a very detailed cost report, however it's crucial to remember the context of the process and understand its limitations. While ratios and databases can drive an assumed count of interior doors, the team should understand there is a range of roughly 10-20% surrounding this assumed quantity that can shift the quantities in either direction as the design progresses and doors are actually drawn onto a set of plans.

**Ratios and Analysis**

Ratios are more than just useful in parametric BIM estimating, they are essential. Ratios drive all scope that is not explicitly modeled or user-defined. Because conceptual BIM hinges on definition of the overall building mass rather than the building interiors, ratios initially drive almost all interior scope items. The data driving the ratios are contained within the database and are informed by previous projects of a similar nature. For this reason, different ratios need to be applied for different building types; a hospital will have significantly more doors per square foot than a library for example.

Even within similar building types, care needs to be given to ensure that ratios are representative of final design intent. Following the door-per-square-foot example above, an office building with an open-concept floor plan will have a substantially lower door ratio than an office building with individual offices. The project team must determine which variables require modification from “default” based on the 80/20 rule.

In a properly-built database, certain ratios act as trigger points to change the nature of certain scope items. For example, if a building is modeled at five stories or higher, it may trigger the elevators to switch from hydraulic to traction. These trigger points are determined on the initial creation of the database by means of “if/then” equations, and should essentially happen “behind the scenes” as the user modifies the model. Other such examples of scope derived from building height trigger points include roof screens, window washing systems, missile-resistant glass, and other code-related issues.

Hand-in-hand with the importance of these ratios in driving the creation of a new estimate is the importance of gathering data from completed projects in order to verify/update ratios. Such data includes overall cost per square foot, floor-to-skin area ratios (to drive the average skin cost paired with the “unclad façade area” line item described earlier), mechanical / electrical cost per square foot values, and interior scope ratios such as partitions, doors, finishes, etc. Context is also very important for backwards analysis; unique aspects such as off-hours work, bedrock in the excavation area, site access limitations, etc. can throw off ratios if not properly noted and accounted for.

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The flow process for harvesting, then utilizing ratios
As has been demonstrated, parametric estimates hinge on a substantial amount of assumed information, making them most useful at the early stages of design (conceptual through early schematic). After this stage, the estimator should switch paradigms back to the traditional quantity takeoff approach in order to properly capture all available design detail.

However, even though detail is assumed at the early stages rather than measured, it is still a more useful tool to the project team than high level cost per square foot metrics, because it allows a means of tracking the latter estimates backwards, and thereby determining specifically how the project scope is trending. For example, an assumed door quantity at conceptual design (based on historical ratios) can be compared to the actual door quantity shown at design development to identify where and why the doors scope is trending over or under budget. Such an analysis is not possible with a high level cost for Division 8 as a whole, which makes no attempt to cast such detail.

Even though these ratios and assumptions may ultimately prove to vary from the final design, they help elicit team feedback more effectively than placing the onus fully on the design team themselves to cast the first assumptions without the benefit of historical benchmark cost/scope data.

Despite the emergence of new software platforms that make the interface with parametric BIM estimating more fluid and user-friendly, the general concept is not a substantial departure from traditional estimating methodology for early-level projects. Although baseline variables and key cost drivers are defined to be more intuitive and easily-communicated, the fundamental mechanics are generally quite similar to those used in traditional parametric estimating. However, by integrating this sleek new technology into the front-end of project design, estimators become a much more integrated member of the team as they use a cost estimating tool to drive much more than just cost estimating. Critical analysis, identification of key cost-drivers, and evaluation of what-if scenarios can all be accomplished real-time, thus challenging long-standing paradigms and placing the estimator in a new role as the custodian of living estimates.

**Sample Sketches**

Representative sketches to reinforce the process described herein have been included above with the applicable subject being addressed.

**Sample Take-Off and Pricing Sheet**

The subject of this paper doesn’t lend itself to a specific takeoff / pricing sheet, however below are two pages extracted from the final estimate report along with accompanying screen shot:
## 01.00.00 GENERAL REQUIREMENTS

### 01.50.00 TEMPORARY FACILITIES AND CONTROLS

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sump Pump</td>
<td>1</td>
<td>S.P.</td>
<td>$1,418.00</td>
<td>$1,418.00</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>$1,418.00</td>
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</table>

Total: TEMPORARY FACILITIES AND CONTROLS $1,418.00

Total: GENERAL REQUIREMENTS $1,418.00

## 03.00.00 CONCRETE

### 03.10.00 CONCRETE FORMING AND ACCESSORIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Forming</td>
<td>4,330.20</td>
<td>S.F.</td>
<td>$9.67</td>
<td>$41,948.44</td>
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<tr>
<td>Grade Beam Formac</td>
<td>32,800.00</td>
<td>S.F.</td>
<td>$9.75</td>
<td>$320,760.00</td>
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<tr>
<td>Pier Cap Formac</td>
<td>19,280.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$143,641.60</td>
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<tr>
<td>Pier Cap Formac</td>
<td>2,150.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$16,020.00</td>
</tr>
<tr>
<td>CIP Column Formac</td>
<td>47,178.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$350,182.56</td>
</tr>
<tr>
<td>CIP Wall Beam Formac</td>
<td>109,100.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$805,126.00</td>
</tr>
<tr>
<td>Formac to elevated floor slab soft</td>
<td>244,525.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$1,819,192.00</td>
</tr>
<tr>
<td>Formac to elevated floor slab soft</td>
<td>3,588.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$26,717.60</td>
</tr>
<tr>
<td>CIP Cap Formac</td>
<td>264,000.00</td>
<td>S.F.</td>
<td>$7.48</td>
<td>$1,952,160.00</td>
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<td>$5,095,805.96</td>
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Total: CONCRETE FORMING AND ACCESSORIES $5,095,805.96

## 03.20.00 CONCRETE REINFORCING

### 03.20.00 CONCRETE REINFORCING

<table>
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<tr>
<th>Description</th>
<th>Quantity</th>
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<th>Unit Price</th>
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<td>Pier Cap Reinforcement</td>
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<td>Steel Bar Reinforcement</td>
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<td>CIP Cap Reinforcement</td>
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<td>CIP Beam Reinforcement</td>
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Total: CONCRETE REINFORCING $1,417,506.12

## 03.30.00 CAST-IN-PLACE CONCRETE

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<th>Quantity</th>
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<th>Total Cost</th>
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</thead>
<tbody>
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<td>S.F.</td>
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<tr>
<td>Finish 600 Series Grade</td>
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<td>S.F.</td>
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<td>Total</td>
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Total: CAST-IN-PLACE CONCRETE $174,200.00

## 09.00.00 PLASTER AND GYPSUM BOARD

### 09.00.00 PLASTER AND GYPSUM BOARD

<table>
<thead>
<tr>
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</tr>
</thead>
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<tr>
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<td>S.F.</td>
<td>$3.38</td>
<td>$322,429.00</td>
</tr>
<tr>
<td>1/4&quot; sheetrock 100%</td>
<td>95,342.00</td>
<td>S.F.</td>
<td>$3.38</td>
<td>$322,429.00</td>
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<tr>
<td>Total</td>
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<td>$644,858.00</td>
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Total: PLASTER AND GYPSUM BOARD $644,858.00

Page: 3/12

Monday, June 29, 2015 2:08 PM

Note: The above table is a simplified representation of the full document. For a complete understanding, please refer to the original document.
**Terminology / Glossary**

**Design Charrette:** A condensed design meeting, typically occurring over the course of a day or less, in which critical stakeholders discuss, analyze, and determine key decisions driving overall project design.

**Firesafing:** A non-combustible material used as a fire barrier around the perimeter of the floors of a building.

**If/Then Equations:** A programming term that compares two or more sets of data points and tests the results.

**Lump Sum:** A single line item value in an estimate representing an allowance rather than a defined, measurable quantity.

**OSHPD (The Office of Statewide Health Planning and Development):** A regulatory government entity established to monitor construction and seismic safety activities within California hospitals and skilled nursing facilities.

**Parametric Estimating:** An estimating process the relies on a statistical relationship between historical data and other variables.

**Porte Cochere:** A covered entrance large enough for vehicles to pass through.

**User-Defined Variable:** A numeric value used in lieu of a modeled value to drive estimate quantities.

**References**

No outside materials have been reference in this paper. Some screen shots above have been taken from the D-Profiler platform by Beck Technologies, per the following version, build-date, and baseline:

![D-Profiler screenshot](image)

All images generated from this software have been created by the author.

---

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5 Reasons Why Face-to-Face Communication is Best

Conference calls have forever changed our business world. Long distance communication has become key to the success of many organizations. Remote workers and virtual teams are quickly becoming the norm these days. Yet, meeting over the phone is not always the answer. When you meet face-to-face is when work tends to get done.

You Don't Have to Be "In Person" But You Need to "Be There"
I am a big believer in face-to-face meetings. Phone calls are great and convenient; however without discipline, they can be wildly ineffective. The problem with phone conferences is that most people "aren't there." By this, I mean they are probably doing something else. People end up phoning it in. Attendees (I won't call them participants) are doing everything but listening to what is happening on the call. Instead, you get background noise. You call on people and it takes them 30 seconds to "get off of mute."

On a recent company-wide conference call, it sounded like someone was doing maintenance on their car...complete with clanging of tools and shouting to their assistant.

Do you think these people were paying attention to anything related to the call?

The Power of Face-to-Face Meetings
Face-to-face meetings are how the hard work usually gets done. And sometimes it makes sense to meet face-to-face even if there is more time, cost, or inconvenience involved. Don't let distance be an excuse for not meeting face-to-face. Video chat is much better than a phone call for discussing tough issues. Skype, FaceTime, and others apps make it easier than ever to meet face-to-face, even when you are remote. So, whenever possible, make sure you meet face-to-face.

Face-to-Face Gets It Done
When possible, make sure you meet face-to-face. You meetings will be shorter, engagement will be higher, and communication will be better understood. And of course, with technology, you can meet face-to-face even when you aren’t in the same place. Question: Do you meet face-to-face in your business? What technologies do you leverage?

5 Reasons Why Meeting Face-To-Face is Best

1. **Body Language is Communication** - We tend to forget that body language plays a major part in our communication. It is not just how you said something, but also your facial expressions and body posture. This is lost in a phone conversation.

2. **Ensures Engagement** - Who knows what people are doing while on conference calls. (You might not want to know.) However, face-to-face leads to engagement. It ensures that people are "in the conversation." I was on a video call with an executive one day, when I suddenly stopped the call. The VP had leaned over and was having a separate conversation with his assistant. When he turned around, he apologized, "Oh, I guess you could see that."

3. **Clarifies Meaning** - Conference calls can lead to misunderstandings either due to lack of communication (See #1) or simply because the medium is not conducive to individuals asking for better meaning. It's much harder to raise your hand on a call than it is in person.

4. **Drives Participation** - When you are all in the same room, it encourages people to participate. You can’t just go sit in the corner and turn your back to the meeting. Yet, this is exactly what many people do on conference calls.

5. **More Efficient** - Face-to-face meetings tend to be shorter than conference calls. On the phone, everyone sits around on mute waiting for the discussion to end. Yes, this can happen in a meeting room. However, in face-to-face situations there is a greater pressure to get to the point.
Get Published in the ET!

to better serve you... Estimating Today requests that you, the members of the American Society of Professional Estimating, help us to make this newsletter informative. We need to hear from you; so please share your realtime project experiences, ideas and thoughts on our online classes and estimating academies, your certification experiences. Know of a hot topic or trend? Contact us, and we will gather information on the subject and report our findings here in Estimating Today. Proud of a project? Send it over; we will publish it in the project profile section, which, by the way, is a great way to have free advertising of your company’s achievements and contract awards. We are trying to give our members what they want to hear, and we need you!

Below is a listing of potential articles; if you have an idea, let us know.

We can help, but we need your input first.

- Professional development, educating estimators, certification of estimators
- Technology, software update, bidding with electronic documents
- Careers in estimating – guidance, leadership, and motivation
- Profiles of prominent estimators in the industry
- Labor shortage
- Accident prevention and loss control
- Trends in Estimating
- Disaster remediation estimating
- Sustainable materials
- LEED®
- Escalation and shortages
- Construction problem solving and decision making
- Contract documents and construction law
- Providing estimates for negotiated work and improving bid packages

Project Profile Articles:

In addition to articles, Estimating Today welcomes project profiles of our members. This is a excellent way to discuss what your company has accomplished. We encourage any company to submit a project description and associated four-color artwork, in jpeg format, to the editorial staff for inclusion.

To get your article published in the ET, contact Tina Cooke at tina@aspenational.org.
ConsensusDocs Releases New Standard Short Contract Editions

Washington, D.C. - Today, ConsensusDocs, a coalition of 40 design and construction industry associations, published two updated short form agreements: the ConsensusDocs 235 Owner & Constructor Short Form Agreement (Cost of Work), and the ConsensusDocs 245 Owner & Design Professional Short Form Agreement. These additional contracts are part of a comprehensive 5-year update cycle to its general contracting series, which were released in December 2016.

"Offering concise contracts is one of ConsensusDocs’ advantages," states Brian Perlberg, ConsensusDocs Executive Director. "Owners are more likely to fare better when they choose standard contracts in which Owners were truly at the drafting table, like these agreements."

Contracts are the foundation of every project, and ConsensusDocs’ mission is to publish contracts that advance project results versus one party's interests. The revised contracts address industry changes impacting insurance, legal, technology, and terminology. The Coalition will continue to release new and updated contract documents throughout 2017, and beyond, to further its mission of helping the industry build a better way.

ConsensusDocs are the only contracts written by leading design and construction industry organizations. ConsensusDocs provides a catalog of 100+ contract documents that incorporate fair risk allocation and best practices to represent the project's best interests versus any one party. For more information, please visit www.ConsensusDocs.org, call 866-925-DOCS (3627) or email support@ConsensusDocs.org.
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Scott Hendricks
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Clayco

Chris Kennedy
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Western National Group

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VP Preconstruction
Systems & Services
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Kyle Holmes
VP Support Operations
The Brandt Companies

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<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Chapter</th>
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<tbody>
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<td>Jorge Franco</td>
<td>Swinerton Builders</td>
<td>Los Angeles # 1</td>
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<tr>
<td>Jim Gerdes</td>
<td>Berg &amp; Associates</td>
<td>Los Angeles # 1</td>
</tr>
<tr>
<td>Yang He</td>
<td>Parkview Fund LP</td>
<td>Los Angeles # 1</td>
</tr>
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<td>Mark Wageman</td>
<td>William A. Randolph, Inc.</td>
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<tr>
<td>Nicholas Sommerfeld</td>
<td>J.S. Held LLC</td>
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<td>Jesse DeWeese</td>
<td>JP Compass</td>
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</tr>
<tr>
<td>David Semler</td>
<td>Rycon Construction Inc.</td>
<td>CP MAL # 92</td>
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**In Memory of Walt Lemon, III**

Columbia-Pacific Chapter 54 raised $1,000 in the memory of Walt Lemon for the National Scholarship Fund. Once the Chapter 54 published this information in their monthly newsletter, Emerick Construction Companies President, Corey Lohman also donated $500.00 towards the National Scholarship Fund.

ASPE Thanks Columbia-Pacific and Emerick Construction
Executive Director Corner

The Board is meeting in Nashville on March 11, 2017. The Governance Committee and Finance Committee are meeting on March 10, 2017. We will be reviewing the Strategic Plan that was approved at the Annual Meeting last July in Tampa and evaluating our progress against last year’s goals. We will be developing goals for the next year and planning for hiring a new Executive Director.

Here are some of the items that have been completed on the administrative side of the organization in the last month:

- Changes in the look of the national website began launching in February. We are developing the ASPE brand so it is easily recognizable across all platforms.
- Social media platforms are launched and linked to the national website. The Board and our committees are working on creating content for social media.
- The application for renewal of the ACCE recognition of our certification program was submitted.
- The Federal and State tax returns for the 2015-2016 fiscal year were finalized and filed.
- Speakers for the 2017 Summit were finalized and contracted.

It is important to the Board to respond to the needs of our members. If you have ideas we should consider for implementation or specific concerns or suggestions we should discuss in our meeting, please let me know.

Marcene N. Taylor, CPE
mtaylor@mticost.com
Scholarship Applications Available online

Scholarship Award: $5,000

Must be currently enrolled as a full-time student and have achieved second-year academic standing in course study of construction related field & have a GPA of 3.0 or higher

Click Here For More Information

In order to comply with the 501(c)3, applicants shall have no relationship with any member of the National Scholarship Committee.

Scholarship Committee consists of Doyle Phillips, FCPE, Chris Morton, FCPE, B. Keith Jones, CPE, Matthew Burress, CPE, John Stewart, FCPE, and Tom Mayer

ASPE Membership Benefits

- A comprehensive mix of Educational Programs that keep the professional estimator abreast of advances in estimating and construction techniques. Our goal as a society is to coordinate educational programs, establish estimating standards, act as a conduit for collecting and distributing relevant information, and to improve the overall abilities of the Estimator.

- Membership in a professional society which promotes the highest standards and Ethics in the practice of construction estimating. ASPE members believe that the adherence to ethical business practices will result in greater success in the long run. Chapter meetings provide a professional-level forum to meet other estimators and discuss common problems and successful solutions.

- The national magazine, Estimating Today, features technical articles and other pertinent information for the professional estimator. Along with the national magazine, you will also receive local chapter newsletters filled with announcements, notices, chapter and member achievements which can serve as a valuable PR tool for you and your company.

- An opportunity to become recognized as a Certified Professional Estimator (CPE) through the completion of our training and testing program. The estimator is one of the primary persons responsible for the evaluation of manpower, materials and equipment required for one of the largest single industries, the construction industry. Government agencies, owners, designers, and contractors are seeking the most qualified individuals to generate successful estimates for their construction projects. ASPE has developed and refined a system for evaluating the capabilities of construction estimators. A program for testing and certification has been developed that includes mandatory attendance at an educational workshop, writing an accurate, acceptable technical paper, successful completion of written examinations and participation in the continuing certification program.

- Serves as a valuable Networking and business development tool while building professional relationships which makes project teaming, client development and peer relations happen. Monthly chapter meetings feature guest speakers on topics of interest to those of each chapter. Serving as chapter officer or on a chapter committee provides additional opportunities to learn and serve the profession. Chapter meetings also provide a forum to meet and discuss common problems with competitors and business associates.
Arizona
Arizona # 6
Where: Double Tree Hotel
320 N 44th Street
Phoenix, - 85008
Date: 2nd Tuesday
Time: 5:30 Social Hour Starts
Meeting Contact: Tom Norton, CPE
aspendtreasurer@gmail.com

Old Pueblo # 53
Where: Varies
Date: 1st Wednesday
Meeting Contact: Trip McGrath, CPE
tripsm@azol.com

Arkansas
Arkansas # 33
Where: Baldwin & Shell - Main Office
1000 West Capital Ave.
Little Rock - 72201
Date: 3rd Friday
Time: 12:00 Noon Social Hour Starts
Meeting Contact: Mickey Perez
mperez@baldwinshell.com

NW Arkansas # 79
Where: Varies
Date: Varies
Time: 11:30 am Social Hour Starts
Meeting Contact: Thom Thibodeau
thom.thibodeau@cox.net

California
Los Angeles # 1
Where: The Barley Restaurant
1400 Huntington Drive
South Pasadena - 91030
Date: 4th Wednesday
Time: 6:00 pm Social Hour Starts
Meeting Contact: Joe Miller, CPE
rioemiller@yahoo.com

Golden Gate # 2
Where: AIA Eastbay
1405 Clay Street
Oakland - 94612
Date: 3rd Wednesday
Time: 6:00 pm Social Hour Starts
Meeting Contact: Gustav Choto
choto@buildingpointpacific.com

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

San Diego # 4
Where: Varies
Date: 3rd Tuesday
Time: 5:30 Social Hour Starts
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: 11:30 am Social Hour Starts
Meeting Contact: Jared Wright
jwright@fillintBuilders.com

Silicon Valley # 55
Where: Varies
Date: Varies
Time: Varies
Meeting Contact: Alan Jacobs, CPE
info@aspe55.org

Colorado
Denver # 5
Where: Urban Roadhouse
999 18th Street
Denver - 80202
Date: 2nd Tuesday
Time: Varies
Meeting Contact: Matthew Mrasussen
mrasmussen@henselphelps.com

Connecticut
Nutmeg # 60
Information not submitted at this time
Contact: Northeast Governor
James Hanna, CPE - junh@dhsv.com

Yankee # 15
Not Active

Delaware
Delaware # 75
Where: Varies
Wilmington, DE
Date: 2nd Wednesday
Time: 5:30 pm Social Hour Starts
Meeting Contact: Jason Gordon
jgordon@jennifertighting.com

District of Columbia
Greater DC # 23
Where: Jacobs
1100 North Glebe Rd., Ste 12
Arlington - 22201
Date: 3rd Thursday
Time: Varies
Meeting Contact: Maurice Touzard, CPE
mtouzard@gmail.com

Florida
Tampa Bay # 48
Where: Grill 116
612 N. Dale Mabry
Tampa - 33609
Date: 3rd Thursday
Time: Varies
Meeting Contact: Bob Nidzgorski, CPE
bob.nidzgorski@skanka.com

Gold Coast # 49
Information not submitted at this time
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-Perimeter
4505 Ashford Dunwoody Rd
Atlanta - 30346
Date: 2nd Monday
Time: 11:30 am Social Hour Starts
Meeting Contact: Clinton Aldridge
clinton.aldridge@skanka.com

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

Indiana
Central Indiana # 59
Where: Varies
Date: 3rd Thursday
Time: Varies
Meeting Contact: Jeremy Atkins, CPE
jatkins@theadkinsgroup.net

Old Fort # 65
Information not submitted at this time
Contact: Central Plains Governor
Dave Westfall, CPE -
dwestfall@aspengroup.com

Iowa
Quad Cities # 71
Where: Granite City Food & Brewery
5270 Utica Ridge Rd
Davenport - 52807
Date: 4th Tuesday
Time: Varies
Meeting Contact: Ryan Andreesen
randreesen@ruscellico.com

Greater Des Moines # 73
Where: Varies
Date: 3rd Thursday
Time: Varies
Meeting Contact: Ryan Haaland
rhaaland@elteglassandmetal.com

Louisiana
New Orleans # 9
Information not submitted at this time
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: Ryan Andreesen
randreesen@ruscellico.com

Maryland
Baltimore # 21
Where: Varies
Date: 2nd Thursday
Time: 6:00 pm Social Hour Starts
Meeting Contact: Steve Krell, CPE
skrell@oskcontracting.com
<table>
<thead>
<tr>
<th>State</th>
<th>Location</th>
<th>Details</th>
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<tbody>
<tr>
<td>MASSACHUSETTS</td>
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<td>Boston # 25</td>
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<tr>
<td>Where: Courtyard by Marriott Boston-Cambridge Hotel 777 Memorial Drive Cambridge - 02139 Date: 3= Wednesday Time: Varies Meeting Contact: Ryan Dogil <a href="mailto:Rdogil@selectdemoservices.com">Rdogil@selectdemoservices.com</a></td>
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<td>Michigan</td>
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<td>Detroit # 17</td>
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<tr>
<td>Where: Varies - visit <a href="http://www.aspe17.org">www.aspe17.org</a> Date: Varies Time: Varies Meeting Contact: Patrick Toddi, CPE <a href="mailto:patrick.toddi@aspe17.org">patrick.toddi@aspe17.org</a></td>
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<tr>
<td>Western Michigan # 70</td>
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<td>Where: Varies Date: 1= Thursday Time: Varies Meeting Contact: Brent Balkema, CPE <a href="mailto:bbalkema@rockfordconstruction.com">bbalkema@rockfordconstruction.com</a></td>
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<td>Minnesota</td>
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<td>Viking # 39</td>
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<td>Information not submitted at this time Contact: Central Plains Governor Dave Westfall, CPE - <a href="mailto:dwestfall@aspengroup.com">dwestfall@aspengroup.com</a></td>
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<td>St. Louis Metro # 19</td>
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<td>Where: Varies Date: 4= Thursday Time: 6:00pm Social Hour Starts Meeting Contact: Jerry Dorhauer, Sr. <a href="mailto:jerry.dorhauer@bellelectrical.com">jerry.dorhauer@bellelectrical.com</a></td>
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<td>Heartland # 32</td>
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<td>Where: Uncle Buck’s Grill or Bass Pro Shops -See meeting contact Date: 3= Wednesday Time: evenings-varies Meeting Contact: Kelly Jarman, CPE <a href="mailto:Kelly.Jarman@jawmini.com">Kelly.Jarman@jawmini.com</a></td>
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<td>Nebraska</td>
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<td>Great Plains # 35</td>
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<td>Information not submitted at this time Contact: Central Plains Governor Dave Westfall, CPE - <a href="mailto:dwestfall@aspengroup.com">dwestfall@aspengroup.com</a></td>
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<td>Nevada</td>
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<td>Reno # 12</td>
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<td>Where: TBD Date: TBD Time: TBD Meeting Contact: David Evans, CPE davidevans@ charter.net</td>
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<td>Ohio</td>
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<td>Buckeye # 27</td>
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<td>Information not submitted at this time Contact: Central Plains Governor Dave Westfall, CPE - <a href="mailto:dwestfall@aspengroup.com">dwestfall@aspengroup.com</a></td>
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<td>Where: Varies Date: 3= Thursday Time: Varies Meeting Contact: David Rowland <a href="mailto:drowland@cteng.com">drowland@cteng.com</a></td>
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<td>Landrun- OK City # 80</td>
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<tr>
<td>Where: Ingrid's Kitchen 3701 N, Young Blvd Oklahoma City - 731 12 Date: 1= Wednesday Time: 11:30 am Social Hour Starts Meeting Contact: Ed Harris <a href="mailto:ed.harris@dormakaba.com">ed.harris@dormakaba.com</a></td>
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<td>Oregon</td>
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<td>Columbia-Pacific # 54</td>
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<td>Where: University Place 310 W, Lincoln St Portland - 97201 Date: 3= Tuesday Time: Varies Meeting Contact: Chana Frederick, CPE <a href="mailto:frederick.chana@gmail.com">frederick.chana@gmail.com</a></td>
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<td>Pennsylvania</td>
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<td>Greater Lehigh Valley # 41</td>
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<td>Information not submitted at this time Contact: Northeast Governor James Hanna, CPE - <a href="mailto:jgh@dhuy.com">jgh@dhuy.com</a></td>
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<td>Empire State # 42</td>
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<td>Where: Achos Restaurant 1814 Western Ave Albany - 12203 Date: 10/6/16-12/12/16-2/17/16-7/4/17 Time: 6:00pm Social Hour Starts Meeting Contact: James Madison, CPE <a href="mailto:jmadison@kerrcontracting.com">jmadison@kerrcontracting.com</a></td>
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<td>Western NY # 77</td>
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<td>Where: Panera Bread 1501 Howard Rd Rochester - 14626 Date: 2= Thursday Time: Varies Meeting Contact: Ben Nodine, CPE <a href="mailto:aspenwmy@gmail.com">aspenwmy@gmail.com</a></td>
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<td>TENNESSEE</td>
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<td>Middle Tennessee # 34</td>
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<td>Where: Adventure Science Center 800 Fort Negley Blvd Nashville - 37203 Time: 1= Friday Time: Varies Meeting Contact: Ricky Sanford <a href="mailto:rsanford7159@hotmail.com">rsanford7159@hotmail.com</a></td>
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<td>Houston # 18</td>
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<td>Where: Spaghetti Western's 1608 N Shepherd Houston - 77007 Date: 2= Monday Time: 6:00pm Social Hour Starts Meeting Contact: Kenneth Barnes <a href="mailto:kabarnes@valerus.com">kabarnes@valerus.com</a></td>
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<td>Rio Grande # 40</td>
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<td>Where: Geogeske Restaurant 2701 North Stanton El Paso - 79902 Date: 1= Thursday Time: Varies Meeting Contact: Rodolfo Barba, CPE <a href="mailto:rodolfobarba1@gmail.com">rodolfobarba1@gmail.com</a></td>
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<td>Where: TBD Meeting Contact: Rick Wyly, CPE <a href="mailto:rick.wyly@gmail.com">rick.wyly@gmail.com</a></td>
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<td>Salt Lake City # 51</td>
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<td>Where: TBD Meeting Contact: John Hampton <a href="mailto:president1@aspe15.org">president1@aspe15.org</a></td>
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<td>Where: Baskervil 101 South 15th Street Ste. 200 Richmond - 23219 Date: 4= Wednesday Time: Varies Meeting Contact: Jacob Dyer <a href="mailto:jacob@gusleboard.com">jacob@gusleboard.com</a></td>
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<td>Puget Sound # 45</td>
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<td>Where: Hales Ales Date: 3= Tuesday Time: Varies Meeting Contact: Michael Booth, CPE <a href="mailto:electricbooth@msn.com">electricbooth@msn.com</a></td>
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<td>Where: Varies Date: 2= Tuesday Time: 5:30pm Social Hour Starts Meeting Contact: Chris Rozof, CPE <a href="mailto:crozof@berghammer.com">crozof@berghammer.com</a></td>
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2017 ANNUAL MEETING AND ESTIMATORS SUMMIT

July 12-15, 2017
Embassy Suites
Downtown Denver