

AMERICAN SOCIETY OF PROFESSIONAL ESTIMATORS

ESTIMATING TODAY

SEPTEMBER/OCTOBER 2018

**HTETCO Catenary
Wire Used in Overhead
Catenary Systems for
Light Rail Construction**

**The Makings of
a Competent Estimator**

The Parallel Estimate

**The Perils of
Uniformat Estimating**



ASPE

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2018-2019

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ASPE

Message from the President



Marcene N. Taylor, CPE

The “P” in ASPE stands for **Professional**.

Professionalism can be defined as an individual’s conduct at work. ASPE publishes a Code of Ethics, with last revision being May 2011 (<https://www.aspenational.org/page/CodeofEthics>).

This is a critical document that defines a broad guideline for professional estimators and estimators in training. As members of the American Society of Professional Estimators, we commit to abiding by the nine Canons as we complete the technical aspects of work in our industry.

News in the recent history of our country has been littered with stories of prominent people whose careers have ended because they haven’t behaved appropriately at work. The Board of Directors is committed to ensuring that all members of our organization conduct themselves responsibly. The Board has adopted a Member Code of Conduct to document and communicate not just expectations for ethical behavior in our technical work, but also in our relationships as we interact with others – coworkers, colleagues, other members, and ASPE staff.

There are four reasons to develop and adopt a Member Code of Conduct (www.whistleblowersecurity.com). First, it exhibits to everyone, including current members, potential members, and other organizations, that we are a responsible organization. It also shows that we value integrity and ethical behavior in all areas of our work. In addition, it communicates expectations to avoid innocent violations of standards that may not be obvious. Finally, it establishes a clear standard and point of reference when it becomes necessary to enforce corrective action.

Effective October 1, 2018, new members will commit to abiding by the Member Code of Conduct and existing members will make the same commitment with their upcoming renewals as a condition of your membership in ASPE. Having all members on the same page regarding appropriate behavior allows us to fulfill our Core Purpose to be the industry leader and recognized authority in **professional** estimating.

Marcene N. Taylor, CPE

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Chapter 90 – NW MAL

The Makings of a Competent Estimator



By Gary W. Beatty, CPE
Chapter 5 – Denver
lechwe@outlook.com

Formal school/college education is not imperative; but competence in mathematics, trigonometry and algebra are foremost skills required by the estimator. An understanding of, if not the capability of utilizing, computer aided design programs will follow on from the understanding of mathematics.

I intend to present this article from the perspective of a CSI Specification Section 05000, Structural and Miscellaneous Metals Estimator.

I am sure though that there will be many similarities within the other CSI Divisions.

Basic Education

When the word education is used, it does not necessarily mean a formal college/school experience, but also includes the life experience and work and/or trade experience of the person that would be interested in pursuing an estimating career.

Formal school/college education is not imperative; but competence in mathematics, trigonometry and algebra are foremost skills required by the estimator. An understanding of, if not the capability of utilizing, computer aided design programs will follow on from the understanding of mathematics. It would also be expected that the estimator would be capable of utilizing computer spreadsheets and various computer aided estimating packages that are available.

For the CSI 05000 Section estimator, in my opinion, there is no doubt that the hands-on experience of actually having spent time in a fabrication shop, fabricating pieces and parts for structural and miscellaneous steel projects, is imperative. The next progression would then be to move into the field and install components that have been fabricated.

Work Experience

In addition to the aforementioned practical life and hands-on experience, work experience is critical. When working as an estimator within this CSI division, one must always continue to figuratively don your steel-toed boots, hard hat and safety equipment. Build the estimate as you would in the shop and field. Break your estimate into the component parts that are required to produce the project and, in this way, not miss any of the required parts of the project. The estimator in this CSI division must have a fundamental understanding of what is required to produce the end product that the estimate/proposal is aiming to present.

The most important tool in all of the actual work experience of an estimator are the ratios that estimators should use to review the historical data bases from successful and unsuccessful projects bids. These ratios must be viewed with a strong understanding of the fundamentals of the company that the estimator is employed by. It is important that the company provide the actual results from completed projects so that these ratios can be adjusted and used to cross-check estimates.

Continuing Education

The manner in which this CSI division is developing, continuing education is of utmost importance. That education should tend more to understanding the coming influence of modeling software and Building Information Modeling. It is a way of relieving the heavy data entry requirements of current structural steel software packages. It should be clearly understood that the model provided, from which data is extracted, is only as good as the "modeler" producing the model. The old adage of "garbage in, garbage out" still applies.

If your competition did not include all the detail that you have included, they may have a lower bid; but they won't have a complete price. If the general contractor's representative for the Division 05000 bid tab managing scope is competent, then he will be aware that even though your price is higher, you have a more complete scope of work.

Tell the Client Exactly What He is "Buying"

From my perspective, it has always been important to explain to the client exactly what is included in the proposal price. With this in mind, writing the proposal and the detail provided for the client's information is as important as the effort put into producing the component costs.

There are, however, a large number of general contractors and owners that do not appreciate this level of detail. They would rather the proposal be vague, in an attempt to avoid the costs involved in change orders proposed due to the lack of detail that the designers, both Engineers of Record and the Architects of Record, provide. This problem has now become so systemic in our industry that I insist that the proposal provided becomes an addendum to the client's contract. I can assure you that this decision, on occasion, elicits howls of anguish from the client. The ridiculous question, "If it is steel you have it, correct?" is now a common occurrence at project scope interview meetings. Be very wary of this statement, and be prepared to deny it!

Understanding and Compensating for the Lack of Knowledge and Expertise in the Design Teams, both Architects and Structural Engineers of Today

With the dearth of experienced architects and structural engineers today, which appears to be a growing problem, it is important that the estimator be able to compensate and at the same time protect his company from economic losses and loss of confidence by clients in the market.

With this in mind, it is also important to write a detailed scope of work. Many of the general contractors will request that you ask questions prior to bid time. I have stopped asking questions as there is a possibility that your competition did not include those items in their pricing. If your competition did not include all the detail that you have included, they may have a lower bid; but they won't have a complete price. If the general contractor's representative for the Division 05000 bid tab managing scope is competent, then he will be aware that even though your price is higher, you have a more complete scope of work. ▲

With the dearth of experienced architects and structural engineers today, which appears to be a growing problem, it is important that the estimator be able to compensate and at the same time protect his company from economic losses and loss of confidence by clients in the market.





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MEMBERSHIP CLASSIFICATION COUNT

Affiliate	88
Certified Professional Estimator (CPE)	542
Estimator	952
Fellow	23
Honorary Member	4
Member Emeritus	52
Student	35
TOTAL	1,696

Welcome to Our New Members

NAME

Noel Cailer
Deepak Moorjani
Robert Sung
Shannon Gafford
Walter Stamirowski
Max Geller
Nora Morin
Justin Davis
Sam Schupbach
James Cruz
Peter Melucci
Michael Thomas
Sean Jursich
Craig Flora
Dick Engleman
James Johnson
Michael Cappello
David Casillo
Ariel Ortiz
Sung Kang
Katie Pickard
Ryan Carter
Kevin Suiter
James McGuigan
Brian Sabala
Darrell Kidwell
Michael Davis
Mara Rahmani
Thomas Smith II
Geovanni Moreno
Dylan Simpkins
Seamus Curran
Radhika Kulkarni
Oleh Kinash
Lester Lawson
Cyrus Irani
Sunil Ummadi
Shahnaz Ratani
Stefanie Klein
Donald Crean
Tim Wieneke
Kolten Everts
James McGuckin
Christine Halvorsen
William Penney
Richard Wald
Scott Frank
Brent Thompson
Jack Gotwalt
Angelo Tasca
Terry Burton
Diane Scheid
Jacob Macias
Tyler Kleinsasser
Derek Ryan
Kyle Buchanan
William Emanuelli

COMPANY

CDM Smith
Terra Management, LLC
—
GSA Public Building Services
Transit Systems Engineering, Inc.
Presidio MEP, LLC
—
Pinner Construction Company, Inc.
CFC Construction
Earth Wind and Solar
Cumming
Southland Industries
Bancroft Architects + Engineers
Hays Construction Recruitment
Bancroft Architects + Engineers
Entergy
Hellman Electric
E.W. Howell Company, LLC
—
Rogers-O'Brien Construction
On Center Software
Rogers-O'Brien Construction
Murphy Company
Monarc Construction, Inc.
EDOS Manufacturers' Reps, Inc.
Kaw Valley Companies, Inc.
Kaw Valley Companies, Inc.
Hutton Construction
—
—
Conger Construction Group
J J Curran & Son, Inc.
—
Construction Cost Management, Inc.
LZL Sevides
Construction Cost Management, Inc.
Construction Cost Management, Inc.
Construction Cost Management, Inc.
On Center Software
Crawford Consulting Services
Wieneke Enterprises, LLC
Renovia
JJ McGuckin Consulting Group, LLC
Environmental Construction Services, Inc.
Penney Construction
Proctor Mechanical Corporation
Ahern Fire Protection
Elder Corporation
Snavelly Forest Products
CannonDesign
KCB Architecture PC
Hourigan
Orionwallsystems
2018 Scholarship Winner + Student
2018 Scholarship Winner + Student
Phillips & Jordan
Emanuelli Group, LLC

CHAPTER

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Welcome to New CPEs

NAME

Griffin Hall
John Becker
William Forbord
Reynaldo Rodriguez
Matthew Burress
Nicholas LaFollette
Bianca Tafares

COMPANY

McCarthy Building Companies, Inc.
KMI International
Loeffler Construction & Consulting
The Douglas Company
Performance Services
—
AECOM

CHAPTER

—
Orlando 50
Viking 39
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Central Indiana 59
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—

the take-off...

Certification Journal:

- **Chapter Reports:**

Quarterly Reports prepared by Chapter Presidents and sent to the SBO are available on the ASPE Website at ...

Members Only / Society Reports

- **Chapter Report Form:**

The Report form to be prepared by Chapter Presidents has been revised and is available on the ASPE Website at

Members Only / ASPE Resources

- **Chapter Presidents:**

It is important that you utilize the updated Form, and Your Chapter Report is due to your respective Regional Governor on September 12!

SBO Corner

FACES OF ASPE: Joshuah Crooker-Flint, CPE

Chapter 47 – Roadrunner – Chapter President

AUI, Inc., Estimator

Contact: Joshc@auinc.net

Best advice I ever received

Work hard. Always set goals, even those that appear to be out of reach.

Best advice I share with young (and not so young) estimators

Projects are made or broken with an estimate. Always know the value you bring to the projects you work on.

Chapter goal for 2019

Gain new members, with a membership goal of 30. Begin a Chapter Scholarship Program for local students attending New Mexico's higher education schools.

If I wasn't doing this, I would

Be attending culinary school and trying to break into the professional cooking industry! I always enjoyed working as a cook while earning my way through college. I still think about taking cooking classes to hone my skills.



Scope it Out...Site Concrete, #1-20



Chris Ray, CPE
Education Committee
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Identifying “scope issues” before the subcontractor proposals are received would be beneficial not only to the General Contractor but would help the individual subcontractor with identifying specifically what the General Contractor wants. This article will assist in the identification of a single scope of work—Site Concrete.

As General Contractors bid projects, there may be several hundred subcontractor and material supplier scope bid proposals that must be reviewed and analyzed in order to incorporate the correct, or at least the “most” correct vendor, bid proposal into the overall price.

This article will assist in the identification of a single scope of work—Site Concrete.

1. As with any scope of work, ensure that the work being performed is ready for installation based on subsequent work. The site concrete subcontractor should inquire from the project site superintendent if the work about to be performed may be installed. Subsequent work must be completed and verified prior to start of the site concrete.
2. Ensure that a concrete washout container or area is provided for the site concrete, as well as the building concrete. Make sure that the site concrete subcontractor is aware of the Stormwater Pollution Prevention Plan (SWPPP) and the washout is compliant with EPA regulations. Allocation of this specific item is best left up to the subcontractor providing this scope. If not included by the Site Concrete subcontractor, then the GC or CM needs to include the item. In either event, ensure it is covered, but not double covered.
3. If temporary sidewalks, drives, or casting beds are required, make sure the site concrete subcontractor is made aware of these requirements. Most of these items may not be a requirement of the specific project, but a means and methods condition. Make sure the vendor includes the removal of the item if necessary.
4. Sub-surface trades (electrical, plumbing, site utilities, irrigation) need to have their work completed, or at least phased properly, prior to the site concrete subcontractor initiating their work. Pipe sleeves under sidewalks, curb and gutters, and routing of electrical lines to light pole bases need to be finished prior to site concrete starting. Additionally, disposition of cranes, dumpsters, and large delivery items may impact site concrete scheduling.
5. Providing heating and cooling of concrete as required by the environmental conditions, in many bids, is a point of contention. Does the General Contractor/CM include an allowance for protection or does the subcontractor include a price in their respective bid? GC/CM controlled environmental protection, as an allowance, may be adjusted upward or downward as the scope is consumed. If the subcontractor is held to take care of their own environmental protection, the subcontractor is at risk of overages or unjustly being enriched. This item should be identified and discussed in the Instruction to Bidders.
6. Furnishing and installing reinforcing steel and mesh varies widely from jurisdiction to jurisdiction. In some instances, reinforcing steel and mesh material will be furnished only by a separate “rebar” supplier, with the installation being performed by the specific subcontractor. In other instances, reinforcing steel and mesh may be furnished and installed by one subcontractor. A typical trade custom is for the reinforcing steel supplier to furnish only reinforcing steel and mesh and the mesh material being installed by the concrete flatwork subcontractor. The reinforcing steel would then be installed by “rod busters.” The key issue here is to make sure the bid instructions are clear on furnish and install, install only, or furnish only.
7. Caulking of exterior saw joints, when required, can easily be performed by either the caulking subcontractor or the site concrete subcontractor. The caulking subcontractor typically has the necessary expertise and equipment to perform this scope item efficiently and effectively. In many instances, if the site concrete subcontractor is performing the caulking, they will have a general laborer perform this work. Though simple in form and function, quality control may be an issue.
8. If significant concrete flatwork areas are indicated, make sure the site concrete subcontractor provides positive drainage in these areas. This is a quality control issue that many subcontractors pass on to the GC or CM as related to initial excavation for cut or fill. Specific elevation tolerances should be indicated in the project documents. If not, provide specific information regarding these tolerances in the Instruction to Bidders.

Scope it Out...Site Concrete ... continued

9. In many instances damage will occur to adjacent property concrete (sidewalks, curb and gutter, etc.) caused by truck traffic or extended utility work. Absent a specific drawing indicating such work, the General Contractor/CM would be best suited for including an allowance for this possible repair. An initial site visit may identify areas subject to potential damage and the possible extent of repair needed after construction and operations in these areas have concluded.
10. In order for the site concrete vendor to set miscellaneous steel items or embeds and anchor bolts for accessory items, these items must be procured in a timely fashion. Furnishing of the embed items is provided by the vendor providing the product requiring anchorage. Scheduling of these items may seem insignificant, but may have a detrimental effect on the site concrete schedule if not coordinated properly.
11. Light pole bases may be considered a structural concrete item. In some instances, light pole bases may be furnished and installed by the electrician. Sometimes they may be completed by the site concrete subcontractor. In any event, there are typically several scopes of work to coordinate: layout, excavation, electrical (with anchor bolt embeds for light poles), formwork, and concrete. The key is to make sure you have coverage, but not double coverage.
12. Not all concrete pads for miscellaneous equipment are shown on the drawings. Either include an allowance or specify a specific number, size, and thickness of miscellaneous concrete pads to be included in the subcontractors bid proposal.
13. Some concrete pads are shown on drawings other than the Site Development Drawings. Electrical, irrigation, and occasionally mechanical drawings may have site concrete pads indicated. Make sure to identify these pads in the instruction to bidders. In instances where a public utility transformer pad is called out but not specified, make sure to include a reference on the specifications for the transformer pad.
14. Pipe bollards, heavy-duty gate-posts, etc., should be set by the site concrete subcontractor. The material being set into concrete will typically be provided by a different subcontractor.
15. Typically, the lot-striping for parking areas is performed by a specialty subcontractor or as a sub-tier contractor to the asphalt paving subcontractor. This may or may not be the case with site concrete, such as curb-and-gutter, fire lanes, and pavement markings for concrete pavement. If there is a mixture of both asphalt pavement and concrete pavement, coordinate the painting requirements with all three vendors. Again, make sure that the scope of work is covered only once, not duplicated.
16. Stair nosings are traditionally furnished and installed by the miscellaneous steel subcontractor. For exterior concrete stairs, the miscellaneous steel subcontractor can still provide these items to the site concrete vendor. Just make sure the item is not double covered.
17. If site handrails are incorporated into the project, consider core drilling the post-holes and grouting solid. This allows the rail to be field measured and fabricated after the site concrete work is completed instead of trying to match the rail sleeves.
18. Ensure all requirements for ADA surfaces are understood and clarifications made regarding ADA pavers, textured painted ADA surfaces, and ADA strips and domes.
19. In most instances, a significant amount of hand back-fill, compaction, and grading will be required for this scope of work. Ensure the subcontractor includes this in their bid proposal.
20. If tie-in to existing concrete is required, make sure this subcontractor includes proper joint preparation and doweling. If not specified in the plans or project manual, coordinate this effort prior to bidding with the Architect/Engineer and appropriate vendors.

The preceding items are just some of the many scope issues related to Site Concrete that may be needed on any given project. The key to proper and effective scope identification is the analysis of gap and duplication issues, where two or more subcontractors have excluded a requirement that is needed or both have included a requirement that is needed by only one trade.

The burden of this analysis and coordination lies with the general contractor and, more specifically, with the estimating team prior to the bid being submitted. ▲



The Parallel Estimate: The Benefits of Utilizing an Independent Cost Estimate



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of DCD Magazine

When the design architect is at the SD (schematic design level - AIA LOD 200) point of design, both the IE and CM are each issued the documents to start their due diligence necessary to complete their respective cost estimates. If the reconciled estimates have bottom lines that are in excess of the owner's known budget, this is a good moment to discuss opportunities for value engineering, which can arise from ideas generated by any or all of the team members participating in the cost estimate reconciliation process.

Recently, a contracting trend for major construction projects is to utilize the Construction Manager (CM) method of project delivery. With this trend, independent cost estimating consultants are often called upon to develop an independent cost estimate, concurrently prepared with and theoretically in alignment with the CM's estimate. This is conveniently referred to as the **“Parallel Estimate.”**

The process usually begins in the early stages of the design process, with the independent cost estimating consultant (herein IE) providing a detailed breakdown for each CSI Division based on the limited design criteria from the design architect. For their cost estimating process, the tendency of the CM is often to revert back to their general contracting ways of negotiating projects consisting of lump sum preliminary sub-bids prepared by sub-contractors and inserted into the CM's breakdown. When this does occur, the IE is prepared to provide the owner and architect an instrument that will, like a mirror, reflect the design back, in terms of dollars, broken down to the quantities designed and anticipated items not designed.

The way it works best is simple. When the design architect is at the SD (schematic design level - AIA LOD 200) point of design, both the IE and CM are each issued the documents to start their due diligence necessary to complete their respective cost estimates. From our experience, it works best if the IE and the CM do not communicate during this stage of estimating, in order to not prejudice their thoughts or pricing. When the two firms are mostly complete with their estimates, we have discovered it is a perfect time to have an all-day (or more days, depending on the complexity of the project) working session. The session will include representatives of the design architect, CM and IE, reconciling the estimates together as far as scope, quantities, materials, staging and schedule. In fact, we have received comments from architects telling us this is a good Q&A time for them and helps them to discover lacking information in their documents.

If the reconciled estimates have bottom lines that are in excess of the owner's known budget, this is a good moment to discuss opportunities for value engineering, which can arise from ideas generated by any or all of the team members participating in the cost estimate reconciliation process.

Now it is time to meet with the Owner! At this point, the team has prepared multiple versions of the cost estimate for the original design along with possible ideas of savings. Now the owner will have the information and ideas needed to make good decisions regarding their construction budget, and about possible design revisions that will help fit the project into the available funding.

The benefits of this process allow owners and their design consultants to identify line items that may or may not be required for the final design. This approach allows an independent opinion that reinforces decisions to move forward by decision making boards, the owner's project managers, and other owner's representatives. It also identifies “budget busting” issues, providing an early breakdown before plans develop fully, protecting against costly modifications to the design and delays to the owner's schedule. In turn, the owner is provided a greater comfort level with their CM. This is why we refer to the parallel estimate as a **decision making tool** that provides beneficial information throughout the entire design process.

CERT recommends the use of the independent estimators for purposes of performing parallel estimates, and suggests that they are indeed an integral component of the entire design process. It is our hope that owners and their design consultants see this value too, and regularly incorporate these independent opinions of cost into their design and planning practices as a matter of course. ▲

2018 ASPE Critical Calendar: September - December

SEPTEMBER

- 12 Certification Committee Meeting via Conference Call
- 12 Education Committee Meeting via Conference Call
- 12 Chapter Reports due to Regional Governor for October Board of Directors Reports
- 18 Standards Committee Meeting via Conference Call
- 19 Committee and Technical Committee Chairs progress reports due to their respective Vice President and Society Business Office
- 25 Last day for Board of Director Reports to Society Business Office for October Board Books

OCTOBER

- 1 **Deadline:** 2018 November/December *Estimating Today* articles to Society Business Office
- 5/6 Board of Directors Meeting - Nashville
- 8 Society Business Office issues invoices for 2019 Membership Dues Renewals
- 10 Certification Committee Meeting via Conference Call
- 10 Education Committee Meeting via Conference Call
- 12-13 CP Regional Meeting: Host: Chapter 65 – Ft. Wayne, Indiana
- 19-20 NW/SW Regional Meeting: Host: Chapter 6 - Phoenix, AZ
- 19-20 NE Regional Meeting: Host: Chapter 42 - Albany, NY
- 19-20 SE Regional Meeting: Host: Chapter 14 - Atlanta, GA

NOVEMBER

- 14 Certification Committee Meeting via Conference Call
- 14 Education Committee Meeting via Conference Call
- 19 Standards Committee Meeting via Conference Call
- 11 Board of Directors Meeting via Video Conference
- 17 Board of Directors Meeting via Conference Call

DECEMBER

- 1 **Deadline:** 2019 January/February *Estimating Today* articles to Society Business Office
- 1 **Deadline:** Member Profile Updates for inclusion in *2019 Membership Directory + Buyers' Guide*
- 12 Certification Committee Meeting via Conference Call
- 12 Education Committee Meeting via Conference Call
- 17 Standards Committee Meeting via Conference Call
- 31 Members suspended from Membership if not renewed



The Perils of Unifomat Estimating

Forward: An Ancient Estimator Reminiscing



Mike Carringer, FCPE
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Of course a lot
has changed.
For the better.
We use all things digital.
I still have a scale,
use it as a straightedge.
Still have a slide rule,
but I cannot remember
how to use it.

My estimating career began, quite by accident, in 1969. Because I needed a job and because construction was the only thing I knew anything about.

I was not hired to be an estimator, but as a clerk. The estimating came about when I watched Mr. Jack Estes estimate concrete formwork. He had been doing it for years. Mr. Jack taught me how to read blueprints, they really were blue with white lines, and the chlorine smell of a freshly printed set would clear your sinuses for a decade.

For those of you who are old enough to remember, and there are precious few of us left, the process was beautifully straight forward. You took out a scale, if you were lucky enough to have one, architectural or civil (or used a ruler if you did not), scaled the drawings, wrote your measurements onto a columnar pad, description, length, width, and/or height, a line per item. The list could be pages and pages in length. The first time I completed the task, I did not number the pages. Bad mistake!

Then you calculate the quantities.

Mr. Jack did his with a slide rule. **A SLIDE RULE!!!** One a foot long made of some exotic wood. How I wish I had that slide rule.

I was more fortunate, thank goodness. I had an SCM Marchant machine with about 1,000 keys (a bit of exaggeration) and you punched the keys, hit the calculate key, and the thing became alive, whirring, the carriage jumping up and moving over one space, whirring, jumping, you get the idea. And you wrote the answer down on your pad. Same process for summing the totals. By the way, you had to crank the handle for the thing to work.

A bit later the company purchased me a 10 key, electric calculator with a paper tape; and I was in heaven.

Of course a lot has changed. For the better. We use all things digital. I still have a scale, use it as a straight-edge. Still have a slide rule, but I cannot remember how to use it.

In terms of the final work product, I am often reminded of a saying of a former estimator associate of mine: "A properly prepared estimate is a series of compensating errors, such that, the project being properly managed, the contractor and subs and suppliers have a reasonable chance of making the fee they put in their estimates."

Unifomat

From Wikipedia, "Unifomat is a standard for classifying building specifications, cost estimating, and cost analysis in the U.S. and Canada. The elements are major components to most buildings."

Those elements include foundations, substructure, exterior closure, etc.

There are obvious benefits to using Unifomat, particularly for budgeting. For example, if you only have a program, or a program and some preliminary drawings, you may be able to determine that the exterior enclosure of the building is say, 10,000 square feet. That data alone is, of course, not enough. What is the composition of the skin? How much glass is there and of what type? How many exterior doors? What is their material composition?

Usually for the purpose of bidding and contracting, the elements which make up an exterior enclosure must be segregated into subcontractor categories -- drywall, masonry, glazing, insulation, etc., depending of course on the elements of this particular building. There will be interior drywall, perhaps masonry and glass.

For detail estimating, based on more or less complete documents, it is possible to survey the quantities

UniFormat Costs Breakdown									
Item	Quantity	UM	Crew	Prod	Lab Unit	Mat Unit	Equip Unit	Total Unit	TOTAL
Consultant	—	—	—	—	—	—	—	—	—
Brick Veneer	3,890	SF	—	—	—	—	—	16.00	85,580.00
Header	245	LF	—	—	—	—	—	20.00	4,900.00
Total									90,480.00
My Estimate									
Mortar	9	CY	C400	2.00	73.08	81.75	15.00	169.83	1,450.00
Face Brick	26,488	PCS	C400	0.03	0.91	0.081	0.05	1.77	47,169.00
Veneer Anc	2,022	PCS	C400	0.01	0.37	0.55	—	0.92	1,841.00
Lintel	224	LF	C400	0.15	5.48	10.90	3.00	19.38	4,341.00
Scaffolds	4,044	SF	C400	0.05	1.83	—	0.25	2.08	8,389.00
Clean Brick	4,044	SF	C400	0.02	0.73	0.02	0.05	0.80	3,378.00
									66,568.00

based on Unifomat. Then they can be sorted by CSI or Unifomat as one wishes. Most estimators I know don't do that with complete drawings since they want to sort by trade, but it can be done.

But here is one of the perils of Unifomat estimating. If you do not use an estimating program that can sort by Unifomat or trade automatically and you have to convert from Unifomat to trade, you may have a lot of work to do.

Recently I did an estimate on a university project in Unifomat because the designer's consultant used that format. The project was divided into three phases. Upon reviewing the estimates, the Owner's representative wanted a trade (CSI) sort also, and four reports, by each phase and all together, in both trade and Unifomat formats. The owner's consultant spent several days resorting its estimate. All I had to do was print the reports based on the sort categories the Owner wanted.

Another peril comes when one compares detail in estimates. Shown above is oversimplified but represents the issue. This particular issue had to do with the brick exterior. Here are the values.

I am not for a moment implying that my estimate is correct and the consultant's estimate is incorrect. I have always found that in depth

discussions with another estimator have made my estimates post review better and more accurate. My point here is in the absence of further detail in the consultant's estimate, it is difficult to know. What we can say is that the quantities (3890 sf vs 4044 sf and 245 lf vs 224 lf) are relatively close and could easily be resolved.

The same cannot be said for the unit pricing and it is hard to know where to begin the discussion.

Some relevant issues:

- Crew Composition
- Wage Rates
- Equipment Pricing
- Burden
- Productivity
- Material Prices
- Sales Tax
- Fringe Benefits

Any one or combination of these factors may lead to a pricing difference between estimates. But in order to be able to investigate the cause of any difference, we must be able to discuss them. If we cannot, we seem rather like two blind men arguing about the color of the sky, and we cast doubt on the value of the profession. Mr. Jack would turn over in his grave. ▲

ANNOUNCEMENTS

Beginning early-October, **Membership Renewal Invoices** will be sent to the email address noted in your Member Profile. To ensure accuracy, please verify that all contact information is current and correct (by logging into the ASPE Website and updating your Profile) no later than September 25. (This also ensures accurate delivery of your Membership Renewal Packet, as well *Estimating Today* and other mailed updates!)

The Benefits of Constructability Reviews



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ASPE Fellows Committee Chair
pancho77@cox.net

These constructability reviews were normally conducted at the 90-100% construction documents design phase, prior to sending the documents out for bid.

While employed by a local consulting firm, I had the opportunity to learn about and prepare constructability reviews for their clients on a variety of projects. Their scope of services, provided to clients, included this aspect of preconstruction activities. The San Diego office specifically marketed this platform with a designated department head, and the estimating staff assisted that supervisor with work associated with those types of assignments. Their company developed an Excel template consisting of the following important pieces of information.

- Drawing number or specification section
- Grid line designation, room number, and detail number
- Description of suggested corrective action
- Column for design team’s response
- Column to verify response to suggestions

These constructability reviews were normally conducted at the 90-100% construction documents design phase, prior to sending the documents out for bid. Separate tabs were created for each design discipline (General, Civil, Landscaping, Architectural, Structural, Interiors, Kitchen, Kitchen, Mechanical, Plumbing, Fire Protection, Electrical, and Instrumentation) as well as the Technical Specifications. Some consultants prefer to utilize a single person to perform the entire constructability review, while others draw on individuals with specialized expertise and experience in a given discipline to handle the undertaking. I was generally assigned all the disciplines except for the MEP scopes. The latter option can affect the analysis of interdisciplinary coordination issues. General contractors often delegate this responsibility to young project engineers who lack the expertise and experience to perform comprehensive constructability reviews.

Specific benefits from undergoing the process include the following items.

- Analyze documents for constructability
- Review interdisciplinary coordination
- Reduce inconsistencies
- Identify duplicate or misleading information
- Verify cross-referencing (floor plans with sections or details)
- Assess material compatibility and proper use on specific job
- Examine specification to drawing coordination (use of boiler plate specs or discontinued products)
- Minimize trade conflicts in the field
- Review code requirements and compliance (CAN BE DANGEROUS IF NOT FAMILIAR WITH PERTINENT CODES)
- Consider ADA Accessibility constraints
- Confirm adherence to building or facility standards\

Resultant benefits from participating in the process may involve these considerations.

- Better relationships among project team members (Owner, Designers, Contractors)
- Improved reputations for project team members
- Professional satisfaction in supporting “best practices” while managing design
- Produce more efficient designs
- Afford more consistent and lower bid results
- Reduce non-essential Requests for Information (RFI’s) or unnecessary Change Orders
- Lessen the chance for disputes, claims or even lawsuits

Value Engineering is not a substitute for constructability reviews. VE is intended to decrease initial or lifecycle cost, not optimize the design and construction process. With collaborative delivery systems,

The Benefits of Constructability Reviews ... continued

performing constructability reviews represents a value-added service. Some Design/Build or Construction Manager At-Risk contractors may offer both Constructability Reviews and more meticulous Interdisciplinary Document Coordination (IDC) services. With the integration of Building Information Modeling (BIM) in the design and preconstruction process, Owners have seen the advantage of incorporating a review of the project model by the constructability review team. The end result can generate more efficient construction and significant cost savings.

Jason Smith, Principal with Construction Analysis and Planning LLC, outlined his five rules for an effective constructability review in a treatise written for the Whole Building Design Guide.

- **Build the Project**
 - Don't Just Focus on the Problems
- **Review the Interface of Various Systems**
- **Keep the Review of Preliminary Documents Constructive (Those Less Than 70% Complete)**
 - Focus on General Design Approaches and Comment on Completed Items while Identifying Obscure, or Easily Forgotten Details
- **Concentrate on Important Items by Asking These Questions**
 - Will the Suggested Correction Impact Time, Cost, or Quality?

- **Take the Time Necessary to Complete a Thorough Review**

Appendix #1 on page 16 represents a sample of a governmental agency's Constructability Review Flow Chart. This diagram clearly indicates how thorough and complex their constructability review process has become over the years. The detailed steps result from modifying their process stemming from a number of "Lessons Learned" on various projects.

Studies show that over 50% of ENR's top design firms promote the use of constructability reviews. The focus remains to introduce another set of eyes to work with the design team and the Owner. Checking design and bid documents by an independent third party to verify that they are complete and accurate can assure the A/E community of achieving desired quality control standards. The most neglected aspect of constructability reviews remains the absence of a concerted follow-through by the design professionals. The various disciplines, most notably the sub-consultants (civil, structural, MEP) do not react to suggestions or comments. The process must allocate time for the reviewer to conduct a back-check of the design team's responses and revisions to drawings and specifications. Design teams should include constructability reviews in their scope of services and fee proposals to Owners. Embracing this practice demonstrates their commitment to QA/QC and may prevent embarrassing situations that arise with poor documents. ▲

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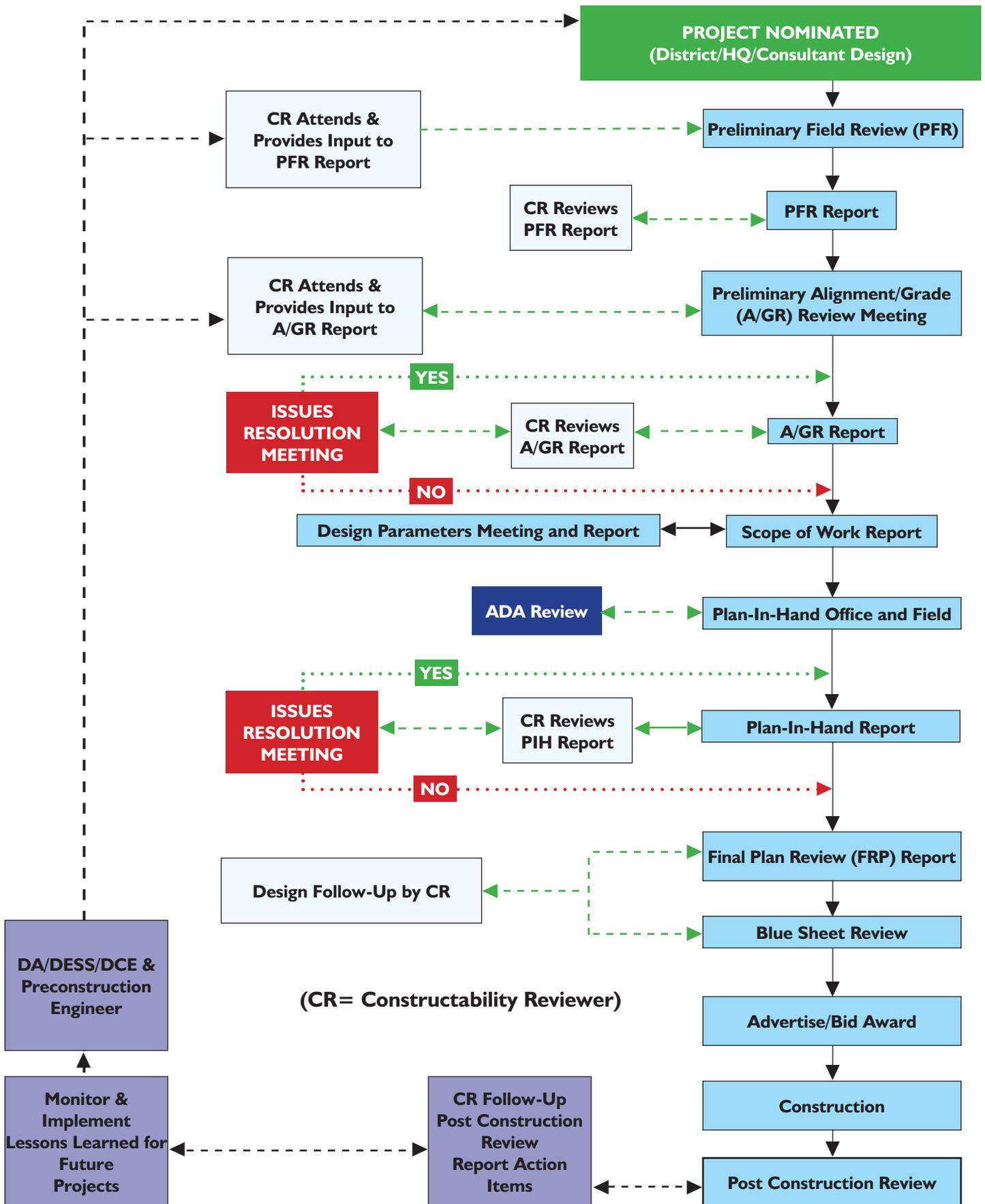
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Appendix 1: Constructability Review Flow Chart



Certification and Professional Development Units (PDUs)

Your Certification Committee came together to write this article outlining the four (4) Professional Development Unit (PDU) Categories. We had the intent to point out just how easy it is to acquire 30 PDU credits each year.

Professional Development Units (PDUs) are simply a validation that we, as Certified Professional Estimators, are actively fulfilling our responsibilities to our fellow CPEs and to the cost estimating profession. This is a benefit to each of us, our Society, and those we serve.

ASPE may require more PDUs than other comparable organizations; however, we also offer more opportunities to obtain PDU credits. Remember, to fulfill the CPE Renewal requirements, PDUs must be earned in more than one Category. The following outline describes each Category.

CATEGORY 1: CONTINUING EDUCATION/TRAINING

If you have attended a workshop, seminar, educational class, or informative meeting that is relevant to Estimating, you will meet the requirements of Category 1. The majority of activities in this Category earn you 0.5 to 1.0 PDU credit per hour of attendance.

Examples

- **Webinar/DVD/Webcast:** If you are learning and attend for 2 hours, 1 PDU credit is earned
- **Lunch & Learn:** If you are learning and attend for 2 hours, 1-2 PDU credits are earned
- **Academic Courses/College or Trade School** (online or in person): 2 hours of coursework earn you 2 PDU credits

CATEGORY 2: AUTHORSHIP, PRESENTATION, TEACHING

If you wrote an article for a periodical, paper or book; if you delivered a presentation; or if you served as an instructor for an industry-related course, you will earn at least 1 PDU per hour. Remember, in this category, you are also able to claim equal credit for your prep time.

- Reviewing Technical Paper(s) for Candidates in the Certification Program will earn you 4 PDU credits
- If you create a blog and submit it to the SBO and it is published, you will earn 0.25 PDU credits for each published blog.
- Instructing or teaching a class or presentation on estimating.

CATEGORY 3: PROFESSIONAL ORGANIZATIONAL ACTIVITIES

Do you have an industry related certificate or license, perform in a leadership role in your Chapter or Region, or serve on an industry related professional committee? This Category also includes ASPE Chapter Meetings, attendance at Regional Meetings, and participation in Summit activities.

- Attendance and participation in Chapter/Regional or ASPE sponsored meeting, workshops, etc. will earn you 1-3 PDUs depending on the time and level of participation or educational opportunity.
- Professional Membership with other industry related organizations (examples, AACE International, CSI) will earn you 1 PDU per active membership.
- Elected leadership role for Chapter or other ASPE organizations can be 3-5 PDUs annually.

CATEGORY 4: OTHER PROFESSIONAL ACTIVITIES

If you are more community minded and share your estimating knowledge and skills in your community, you will be awarded PDUs for court mediation, awards of professional excellence, and volunteering.

- Community volunteer work (relevant to estimating) provides you 1 PDU per hour.
- Media interview, source of press release (live or in print, relevant to estimating) earns you 1 PDU per instance, published article.
- Volunteer job training activities related to the estimating profession earn you 1 PDU per hour.
- If you support a CPE Candidate and act as a proctor for their GEK or DST Exam, you will earn 2 PDU credits per exam that you proctor.

For questions or assistance, please contact Certification@ASPENational.org. The Certification Team will be happy to guide you through the process.

2018 CERTIFICATION PROGRAM CHANGES

Effective 07/01/2018

The ASPE Board of Directors, together with the Certification Committee, has unanimously approved the following updates/changes to the ASPE Certification Program.

● CPE Candidate: Fails – 2 Attempts / Carry-Forward Passing Grade(s) to Reapplication

- ▲ **Approved:** Candidate will be allowed to carry-forward Passing Grade(s) and re-take failed/or incomplete portion of the Certification Program ONLY if ...
 - Candidate reapplies in 6-12 Months from the month that the fail occurred AND
 - Candidate must complete the failed/or incomplete portion within three (3) months from the re-application acceptance date
- ▲ **Note:** DST Part 1 and DST Part 2 are separate tests but are weighted as 1 item. If Candidate fails either Part of the DST Exam, both Part 1 and Part 2 must both be retaken
- ▲ **Note:** Candidate must earn a score of 70% on DST Part 1 and DST Part 2 of the DST Exams
- ▲ Incentive for Applicant to reapply and continue in the Certification Program toward CPE designation

● CPE Candidates: Fails – 2 Attempts / Requires 6-Months Waiting Period prior to Reapplication

- ▲ **Approved:** Offer \$100 Credit to Application Fee if Candidate reapplies in 6-12 Months
- ▲ Incentive for Applicant to reapply and continue in the Certification Program toward CPE designation

● PDU Requirements

- ▲ **Approved:** Reduce from 30 PDUs to 24 PDUs Annually
- ▲ PDUs do not carry over into subsequent years
- ▲ **Effective Date:** Cycle Start Date 01/01/2019

● CPE Renewal Period

- ▲ **Approved:** Annual Renewal vs every 3-years
- ▲ **No Change in Fees/Renewal Fees:** \$50 Annually
- ▲ **Effective Date:** Scaled/Beginning with 2018 Cycle Renewals
 - 2018 Renewals/Extend 5 Months from 07/31/2018 Cycle End to a 12/31/2018 Cycle End
 - 2019 Renewals/Extend 5 Months from 07/31/2019 Cycle End to a 12/31/2019 Cycle End
 - 2020 Renewals/Extend 5 Months from 07/31/2020 Cycle End to a 12/31/2020 Cycle End

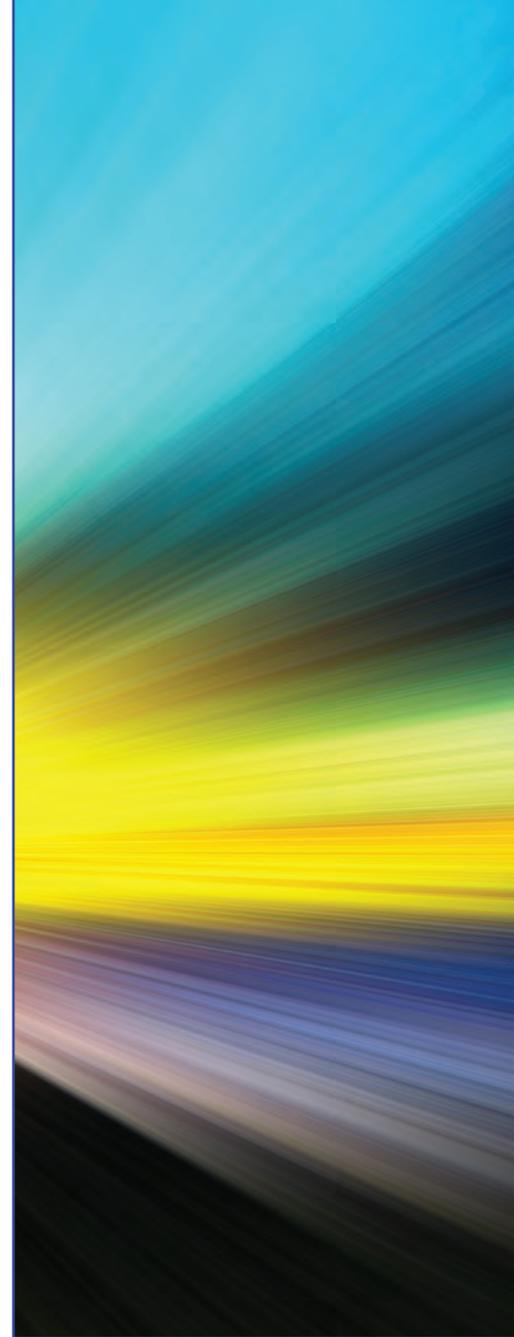
● CPE Renewal Date

- ▲ **Approved:** Adjust to Annual Cycle End Date of 12/31
- ▲ Coincide with Membership Renewal
- ▲ **Effective Date:** Scaled/Beginning with 2018 Cycle Renewals
 - 2018 Renewals / Extend 5 Months from 07/31/2018 Cycle End to a 12/31/2018 Cycle End
 - 2019 Renewals / Extend 5 Months from 07/31/2019 Cycle End to a 12/31/2019 Cycle End
 - 2020 Renewals / Extend 5 Months from 07/31/2020 Cycle End to a 12/31/2020 Cycle End

● CPE On-Time Renewal: Cycle End Date vs Expiration Date

- ▲ **Approved:** Dates to be the Same
 - No longer 12-Month Grace Period to submit PDUs

- ▲ **Only a 30-Day Grace Period for Renewal (for submission of PDUs)**
- ▲ After 30-Day Grace Period Expires = Late Renewal or Reactivation will be required
- ▲ **Effective Date:** Scaled/Beginning with 2018 Cycle Renewals
 - 2018 Renewals/Extend 5 Months from 07/31/2018 Cycle End to a 12/31/2018 Cycle End
 - 2019 Renewals/Extend 5 Months from 07/31/2019 Cycle End to a 12/31/2019 Cycle End
 - 2020 Renewals/Extend 5 Months from 07/31/2020 Cycle End to a 12/31/2020 Cycle End
- **CPE: Late Renewal Fees**
 - ▲ **Approved:** \$50/Calendar Month Penalty until required PDUs are submitted
 - ▲ **Effective Date:** Cycle Start Date 01/01/2019
- **CPE Reactivation**
 - ▲ **Approved:** \$1,500 Reactivation Fee
 - ▲ **Approved:** This is a one-time only option available to a CPE
 - ▲ **Must occur within 2-Years after Cycle End Date**
 - ▲ No PDUs required during Reactivation
 - ▲ **After Reactivation, PDU requirements will continue in order to maintain CPE Certification**
 - ▲ **Effective Date:** Cycle Start Date 01/01/2019
- **CPE Lifetime Status**
 - ▲ **Approved:** With CPE Renewal accomplished Annually, Lifetime Status will require 14 consecutive On-Time Renewals (= 15 Years as CPE in good standing with Membership in Good Standing)
 - ▲ Time starts over at 0 Years as CPE, if/when a CPE has been Revoked or granted Amnesty
 - ▲ **Implementation:** Application review required by Certification Team



ASPE CORE PURPOSE

ASPE is the construction industry's leader and recognized authority in professional estimating through excellence in Education, Certification, and Standardization.

ASPE CORE VALUES

Education:

ASPE educates and mentors professional estimators for the sustainability of the construction industry.

Professionalism:

ASPE promotes the lifelong pursuit of excellence and credibility in professional estimating.

Fellowship:

ASPE develops a fellowship of professional estimators that connects and leads the construction industry.

ASPE MEMBER CODE OF CONDUCT

EFFECTIVE SEPTEMBER 1, 2018

The American Society of Professional Estimators (ASPE) has adopted the following Code of Conduct to which all members agree to adhere, as acknowledged during payment of membership dues.

Each Member of ASPE is an important contributor to the Society's Core Purpose. By joining ASPE, each Member agrees to conduct themselves in a professional businesslike manner.

Each Member represents ASPE to the public, other Members, and staff. ASPE is committed to providing an environment free of discrimination and harassment, where all individuals are treated with respect and dignity, can contribute fully, and have equal opportunities.

The objective of this Code of Conduct is to ensure that all Members are aware that harassment and discrimination are unacceptable practices and are incompatible with the standards and Professional Code of Ethics of ASPE.

Conduct with the General Public and Members:

- ▶ Conduct all work and business affairs with fairness to all concerned and in compliance with the ASPE Code of Ethics.
- ▶ Conduct all Society activities without prejudice as to an individual's age, gender, race, color, religion, national origin, handicap, disability, sexual orientation, marital status, or other protected trait or class.

Conduct with Staff:

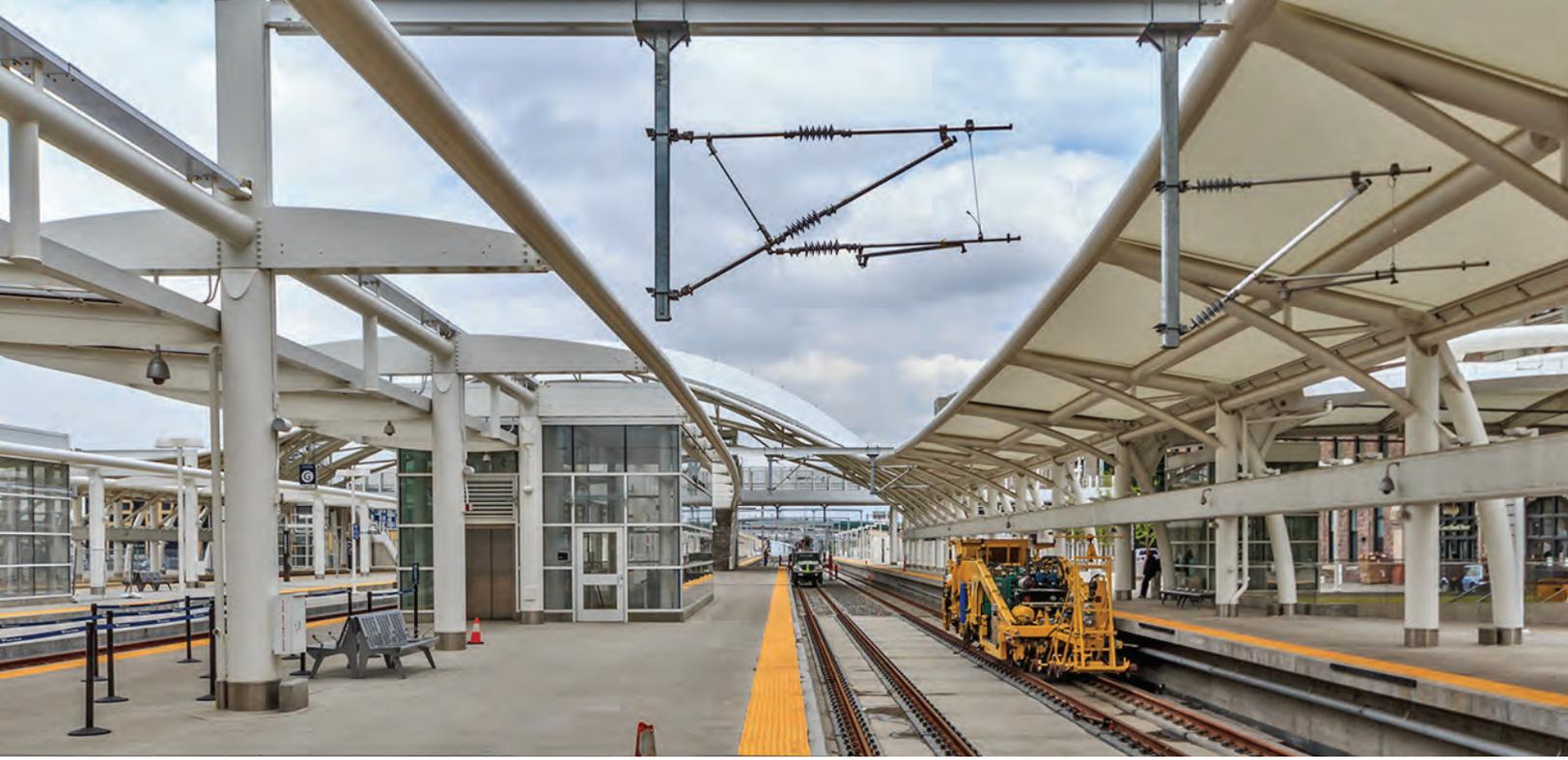
Certain rules regarding Member behavior relating to interactions with staff are necessary for efficient business operations and for the benefit and safety of all employees of ASPE. Conduct that interferes with operations, *discredits the* Society, is unsatisfactory or is offensive will not be tolerated.

Examples of behavior in interactions with Staff that will not be tolerated are as follows. Please note that this list is not intended to be, nor should it be, considered an exclusive list of inappropriate behavior:

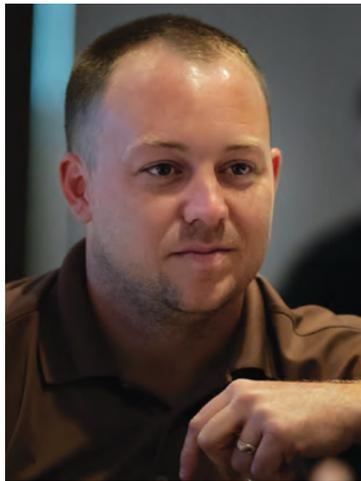
- ▶ Being discourteous
- ▶ Being threatening or intimidating
- ▶ Use of profanity or abusive language
- ▶ Sexual harassment or any other form of illegal harassment

To report inappropriate behavior, please submit a written report via email to ecersosimo@ASPEnational.org. All reports will be forwarded to the Governance Committee for investigation and resolution.

The American Society of Professional Estimators will exhaust all efforts to investigate the incident, and a report of findings will be prepared by the Governance Committee and issued to the Board of Directors. If necessary, the incident will be referred to the Investigative Committee as outlined in the Society Bylaws. As deemed appropriate, operational and/or personnel changes will be initiated to prevent a similar occurrence; and if applicable, Membership may be revoked.



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HTETCO Catenary Wire Used in Overhead Catenary Systems for Light Rail Construction

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HTETCO Catenary Wire Used in Overhead Catenary Systems for Light Rail Construction



SECTION I: INTRODUCTION

The intent of this technical paper is to explain the basic processes involved to properly estimate the installation of catenary wire used in overhead catenary system or OCS as it is often referred to in the industry.

CONSTRUCTION SPECIFICATIONS INSTITUTE

MAIN CSI (Masterformat 1995):
Division 16 – Electrical

RELATED CSI (Masterformat 1995):
Sub-Division 16350
Overhead Contact System Basic Electrical Materials and Methods
Sub-Division 16371
Overhead Contact System

BRIEF DESCRIPTION

The overhead catenary system (OCS) consists of all of the components from ground up on a light rail transportation application. The main components are the messenger wire, contact wire, cantilever/head-span/bridge/backbone anchor/pull-off/counter-weight assemblies, poles, hangers, jumpers, disconnects, down-guys, and insulators along the line section. This paper will detail the steps necessary to develop a lump sum bid for the messenger and contact wire only. A wire run is the

length of wire installed between two termination points. The messenger wire specifications can vary depending on project or local governing authority requirements, but generally 500 MCM 37 strand bare copper wire is used. The contact wire is subject to the same aforementioned requirements and is typically 350 MCM grooved bare solid copper wire. The reason light rail systems sometimes utilize a messenger wire is to ensure the contact wire is level and stays in contact at all times with the train. For this reason, the messenger wire has sag and the contact wire is supported by hangers spaced approximately every 80' connecting the messenger and contact wires together. For the purpose of this paper, it is assumed the electrical design has been approved at 95% complete and a complete set of "issued for construction" plans and specs has been issued. As such, all of the required costs will be accounted for and demonstrated including unit costs for material, labor, and equipment as well as indirect costs such as general conditions, insurance, permits, and overhead/profit.

Section 2: Types and Methods of Measurements

There are many factors that contribute to the installation of the messenger and contact wire such as direct current feeder lines coming from the DC switch-gear (typically located inside a substation) and any associated conduits or foundations. However, this paper will only focus on the actual installation of the messenger and contact wire in the OCS construction. For this, we will see how to account for all materials, labor, and equipment associated with a 4,740' wire run of line segment track. In order to accomplish this, the estimator will perform a take-off of the wire using the plans and past work data to generate project specific unit costs for materials, labor, and equipment involved. A few things the estimator will need to know to properly estimate these components are as follows:

- Review of manufacturer shop drawings of the messenger and contact wire. Typically, these are provided by a specialty subcontractor/vendor and usually are either a disadvantaged business enterprise (DBE), minority owned business enterprise (MBE), or a woman owned business enterprise (WBE). It is imperative that the design is checked for construction feasibility in regards to the other components in the OCS **before** material ordering is placed. Typically, a large wire purchase order is placed for most of or the entire project with specific wire cut lengths for each line segment of track. It is common practice for a project of this size and type to be designed in phases by percent complete (i.e. 30%, 60%, 95%, 100%). After each phase is completed, the estimator can review and update his estimates and quotes accordingly. Any deviation from the final design usually results in incorrect wire lengths with consequences being long lead times and increased costs due to minimum quantity charges from wire suppliers.
- Review of the drawing plan set for wire run to confirm exact length, accounting for overages in sag and counterweight setup. The sag can be calculated using the following where
 - S - **Maximum sag distance, in ft.**
 - H - **Horizontal tension at each end, in lbs.**
 - w - **Weight per unit length, in lbs./ft.**
 - l - **Span length, in ft.**
- Though changes do occur between design phases, the estimator relies heavily on past experience and knowledge base to account for items left out or missed during the initial design phase bid of 30%.

Section 3: Specific Factors to Consider in Takeoff and Pricing

ACCESS/EXISTING CONDITIONS

The OCS is just one part of a multilayer project that involves much more, including earth excavation/stabilization, light rail track work, concrete foundations, etc. In order to install the messenger and contact wires, all of this work has to be completed, including poles and wire support assemblies, such as cantilevers, have to be installed. As such, the estimator must factor in the possible access and any existing conditions into his determination of material, labor, and equipment rates. For access, this includes where it's feasible for the wire pulling truck to get on/off the track. Normally, this is at the nearest crossing or station platform. For existing conditions, this includes any field

deviations on pole locations, track-to-pole offsets, and overall wire run termination point locations.

Due to lengthy material lead times, the catenary wire may have already been delivered to the contractor's storage yard. The main material quantity problem occurs when a wire run is either shorter or longer than what was originally designed. Before the order was placed, the estimator would account for waste and overage at the counterweight at a total of 10%. It can be possible to switch wire reels originally cut to length for one wire run and use it for another. If this problem occurs, typically an additional wire order will need to be placed immediately for two or more wire runs. This order most likely comes with an expedite charge, or in some cases the wire supplier may have a wire reel available with more than the needed amount, which results in more waste.

Another consideration is the labor productivity factor. When the estimator originally estimates the catenary wire installation, some overtime and holiday time must be accounted for. This is due to the heavy project schedule constraints to have certain wire segments fully operationally for revenue service by milestone dates. During these lower productivity dates, crews are typically overstaffed to ensure project deadlines are met.

Lastly, the equipment used in catenary wire installation is extremely specialized and can be costly to maintain and/or repair. Typically this includes two bucket trucks, a boom lift truck, wire reel cart, wire puller/tensioner, and pulleys/blocks.

SCHEDULE COORDINATION

Since there are specific milestone deadlines to meet, coordination between contractors is key in maintaining those owner-expected and project-driven dates. The estimator should examine the overall project schedule to see how other trades' progress will affect the installation of the catenary wire. Lack of float in preceding work can lead to extra coordination meetings with other contractors and vendors, decreased productivity rates and increased pay rates in order to accelerate to meet deadlines.

WEATHER EFFECTS

Due to the length of a typical project like this, weather can also play an important role in meeting deadlines and keeping crews productive. Of course, most government projects have a specific amount of weather days allotted in the schedule depending on the season. However, the estimator should consider the allotted weather days vs. historical data (if available) to account for loss in productivity, which will increase overall labor costs

This lump sum amount includes material, labor, and equipment to perform the scope of work stated.

QUALITY ASSURANCE

Due to long lead times, high material costs, and tight project deadlines, typically the owner will have a quality assurance team that verifies the installation of all work performed. Since the contact wire is specially designed and ordered, it is extremely important that the installation is done without damage to wire. Therefore, the estimator may be required to add labor cost for areas of low overhead clearances and limited access.

Section 4: Overview of Labor, Material, Equipment, Indirect Costs and Markups

In a lump sum bid, the estimator will present a package to the owner or general contractor that includes his scope of work, inclusions, exclusions, and a total dollar amount. This lump sum amount includes material, labor, and equipment to perform the scope of work stated. These three costs make up the total hard cost for the project. Indirect costs are added on top of this hard cost, as well as overhead and profit markups resulting in a final lump sum bid amount.

MATERIAL COSTS

It is one of the estimator’s responsibilities to monitor daily copper prices as catenary wire prices can fluctuate daily based on its high copper content. It is also the estimator’s responsibility to verify any project requirements to meet DBE, MBE, WBE percentage goals. It is very common for government projects to have these requirements such as, “at least 30% of all materials used in an assembly must be supplied by a DBE, MBE, or WBE.” This may or may not drive material costs up depending on factors such as local supplier competition, geographic location of the project, and lead-time schedules. It is wise for the estimator to put the daily copper price used in his bid assumption notes since copper prices could be significantly higher by the time the bid has been awarded. Another consideration to a government project is sales tax. Typically, sales tax is exempt for materials used on a government project provided the contractor fills out the proper documents and submits their tax information to the material supplier to keep on record.

LABOR COSTS

The cost of labor for a self-performing contractor is a very high priority. Since material costs will be comparable from contractor-to-contractor bidding on the same project, the labor cost can be that extra edge to win the bid, as this a cost the contractor can directly control based on how well the project is managed. Of course, other factors play a part, as previously discussed, such as scheduling and quality assurance. However, properly staffing and controlling the labor force on a project can mean big savings in the overall big picture. A crew rate is made up of different individual rates of varying level personnel. For example, a wire pulling crew may consist of three lineman apprentices, one journey lineman, and one foreman. To obtain the crew rate, the estimator must first develop each employee’s rate by taking their base pay and adding insurance, payroll taxes, benefits, and union fees (if applicable). An example breakdown of this is shown below:

A crew rate is made up of different individual rates of varying level personnel.

STRAIGHT TIME	ST	AP APPRENTICE	JY JOURNEYMAN	FM FOREMAN
Percentage of Journeyman's Pay –			85%	11.3%
		\$ 22.37	\$26.32	\$29.29
Composite Insurance & Taxes		\$ 2.28	\$2.68	\$2.98
Fixed Value Benefits				
Health & Welfare		\$ 7.19	\$ 7.19	\$ 7.19
Local Pension		\$ 10.02	\$ 10.02	\$ 10.02
Training		\$.56	\$.51	\$.51
LMCC		\$.25	\$.25	\$.25
Percentage Based Benefits				
NEBF	3.0%	.67	.79	.88
NEIF	1.0%	.22	.26	.29
Benefits Sub-Total		\$ 18.91	\$ 19.02	\$ 19.14
Full Loaded Rate - Total		\$ 46.56	\$ 48.02	\$ 51.42

Next, the sum of the weighted individual employee rates divided by the total number in the crew will equal the crew rate. In this example, the total crew rate is \$46.03 per hour.

EQUIPMENT COSTS

Since all of the equipment used during the installation of catenary wire is specialized, the contractor will most likely own it. Therefore, the estimator will use an hourly or daily rate to charge the project for the use of that piece of equipment. This rate is determined by overall purchase price, annual maintenance costs, and depreciation. If any additional equipment is needed and can be rented, a quote should be obtained, including the cost of the rental, delivery fees, fuel surcharges, etc.

INDIRECT COSTS

Unlike the material, labor, and equipment costs, indirect costs are based more on the overall project costs rather than individual activities within the overall scope. Indirect costs vary by project but typically include indirect supervision such as project managers, field engineers, safety supervisors, quality managers, and office administrative staff. Some other typical costs include small tools and supplies, staff vehicles, fuel, personal protective equipment, site trailer/storage, temporary fencing, temporary facilities, field supplies, office supplies, permit fees, and insurance costs. Insurance costs can be further broken into builder's risk, liability and surety bonds. Since these costs are calculated on the overall project, the estimator can proportion out percents of these values based on the hard cost for the installation of catenary wire compared to the overall project hard cost.

MARKUPS

Overhead for a company is the cost of being in business. This isn't always a recoupable cost. For example, if the company did not make money on a project or did not have any work for a month, this cost would still exist and be incurred. It includes items such as office leasing, office equipment, supplies, non-project related staff, company-wide incentives, etc. Profit, on the other hand, is directly related to how well a project does financially. Each project has its own profit margin set before the bid is sent out. There are two types of overhead and profit markups-- line item inclusive and 'below the line' items. The first typically refers to subcontractor bids used in an estimate. These bids typically include all labor, material, equipment, and indirect costs including markups. Another key point to being a competitive bidder is that the more work you can self-perform, the more potential cost savings exists due to decreased overall markups on a project. For this reason, the decision to add the correct profit percent on the bid is critical to obtaining a winning bid. Some projects are bid with low or even no profit simply to get work in hopes

more work will be available at a later date. Typically, profit margins can range from three to eight percent on a project of this size.

Section 5: Special Risk Considerations

Due to the nature of dealing with electricity, there are special risk concerns that must be addressed by the estimator to accurately determine a bid.

CREW SAFETY

First, some projects require working around live line segments, which can be dangerous if lockout/tag-out procedures are not followed. Typically, these projects are done at night during non-operating times for the light rail transit authority so visibility is another concern. As the installation of catenary wire relies heavily on other trades' workmanship, coordination between contractors is key to ensure the project timeline and budget is met.

PUBLIC SAFETY

Since light rail transit lines typically run through urban areas, the safety of the public is also a major area of concern. Traffic control devices must be in place while working over a roadway crossing. Netting should be in place on all bridges over street traffic. Temporary fencing should be installed for work performed at an existing train station, such as tying into an existing line segment.

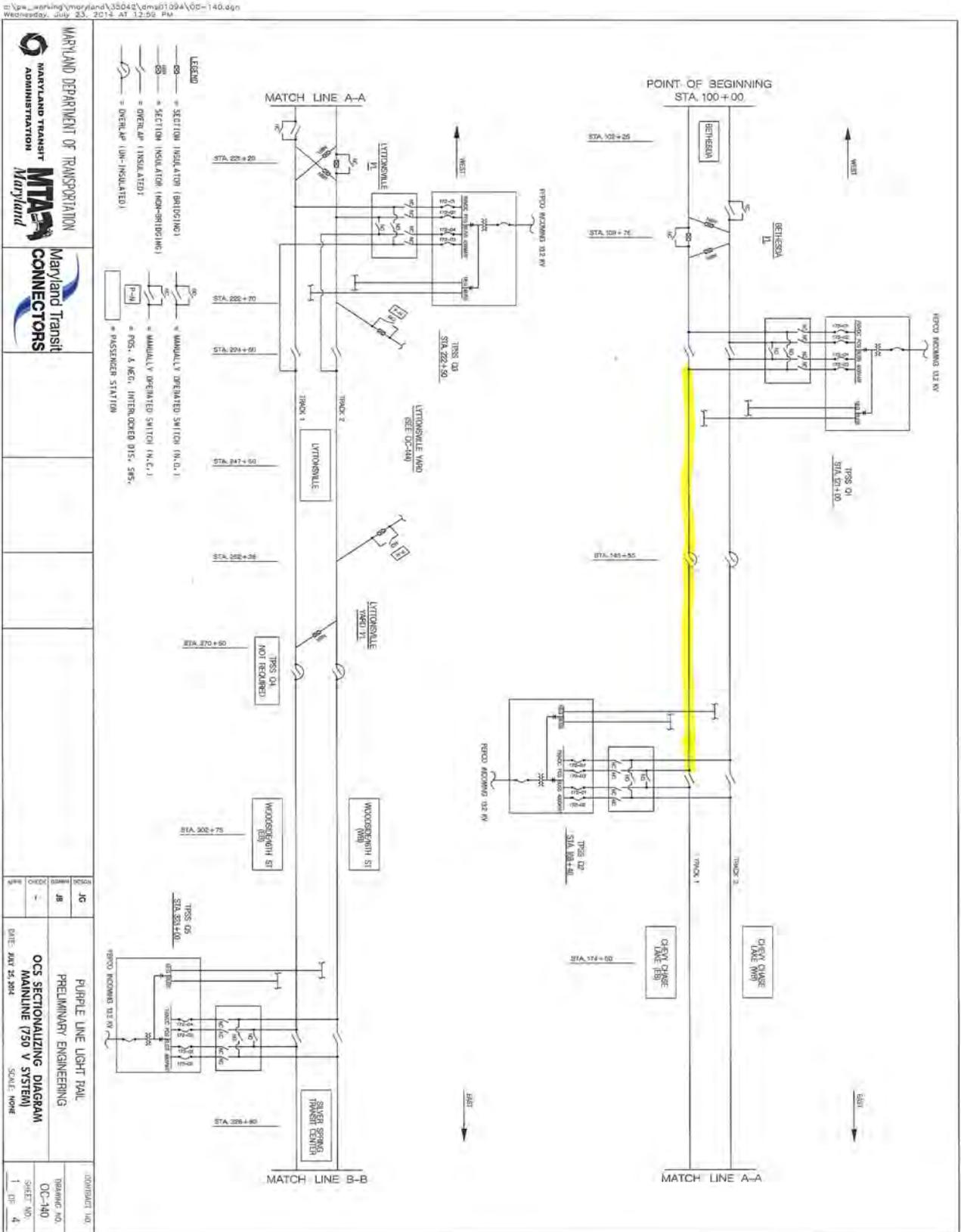
Section 6: Ratios and Analysis

An estimator is only as good as the work he/she produces. Therefore, testing the bid against historical data is crucial to verifying the accuracy and completeness of any estimate. There will always be fluctuations in material and labor costs due to factors such as availability, geographic location, and inflation. Comparing individual unit costs will not prove accurate since projects will have variations in design and installation techniques. Instead, the estimator can calculate the project costs on a linear foot basis to properly compare to the historical linear foot costs for installed catenary wire.

Section 7: Miscellaneous Pertinent Information

Thus far, we have discussed the various factors the estimator will consider while creating an estimate for a lump sum bid. Some other important information to consider for light rail transit projects includes special general requirements. These requirements can be certified inspectors or OSHA trained employees. While contractors are obtaining certifications more often just as a part of doing business, it is important to note the added costs if special certifications are required. Some government funded projects will also have an "American made" clause specifying how much of a typical assembly of materials has to be either manufactured and/or assembled in the United States of America.

Section 8: Sample Sketch



Section 9: Sample Takeoff and Pricing Sheet

Messenger & Contact Wire- Take Off- 4,740' Wire Run							
Description (FT)	QTY (FT)	Weight (LB/FT)	Tension (LBS)	Sag (FT) (FT)	Waste (5%)	Counterweight Setup (5%)	Calculated Length
500 MCM-37 strand	4,740.00	1.54	8,000.00	551.55	264.58	264.58	5,820.70
350 MCM-solid grooved	4,740.00	N/A	N/A	N/A	237.00	237.00	5,214.00

Equipment- Per Linear Foot Messenger Wire				
Description	QTY	HRS	Price/HR (\$)	Subtotal
Bucket Truck	2.00	0.05	\$ 150.00	\$ 15.00
Boom Truck	1.00	0.05	\$ 225.00	\$ 11.25
Wire Reel Trailer	1.00	0.05	\$ 200.00	\$ 10.00
Total Equipment Rate				\$36.25

Equipment- Per Linear Foot Contact Wire				
Description	QTY	HRS	Price/HR (\$)	Subtotal
Bucket Truck	2.00	0.03	\$ 150.00	\$ 9.00
Boom Truck	1.00	0.03	\$ 225.00	\$ 6.75
Wire Reel Trailer	1.00	0.05	\$ 200.00	\$ 6.00
Total Equipment Rate				\$21.75

Labor-Unit Cost					
	APPRENTICE	JOURNEYMAN	FOREMAN	Sum Crew	Crew \$/HR
Wages	\$ 22.37	\$ 26.32	\$ 29.29		
Add Ons	\$ 21.19	\$ 21.70	\$ 22.12		
Total	\$ 43.56	\$ 48.02	\$ 51.42		
Crew	3	1	1	5	
Hrs/Wk	40	40	40	200	
Wages	\$ 2,684.64	\$ 1,052.80	\$ 1,171.77	\$ 4,909.21	\$ 24.55
Add Ons	\$ 2,543.08	\$ 868.09	\$ 884.96	\$ 4,296.13	\$ 21.48
TOTAL	\$ 5,227.72	\$ 1,920.89	\$ 2,056.72	\$ 9,205.33	\$ 46.03

Loaded-Unit Costs							
Description	Qty	Unit	Material (\$/LF)	Labor (\$/HR)	Labor (\$/LF)	Equipment (\$/LF)	Subtotal
500 MCM-37 Strand	5,820.70	LF	\$ 10.00	\$ 46.03	\$ 2.30	\$ 36.25	\$ 537,114.96
350 MCM-Solid Grooved	5,214.00	LF	\$ 7.00	\$ 46.03	\$ 1.38	\$ 21.75	\$ 389,885.50

Indirect Labor Cost - Per Linear Foot Wire				
Description	QTY	HRS	Price/HR (\$)	Subtotal
Project Manager	1.00	0.01	\$ 75.00	\$.75
General Foreman	1.00	0.01	\$ 50.00	\$.50
Superintendent	1.00	0.01	\$150.00	\$ 1.50
Total Indirect Cost				\$ 2.75

Final Bid	
Description	Subtotal
Messenger Wire	\$ 537,114.96
Contact Wire	\$ 389,885.50
Indirect - General Conditions (5% of hard cost)	\$ 30,345.43
Conditions (5% of hard cost)	\$ 46,350.02
Bonds/Insurance/Permits (2% of hard cost)	\$ 18,540.01
Overhead (8%)	\$ 81,778.87
Profit (5%)	\$ 51,111.80
Total Lump Sum Bid	\$ 1,155,126.59

As shown in the takeoffs on page 27, the estimator would calculate the true wire length of the messenger wire using the provided sketch and sag formula along with the wire weight, waste, overage, and tension factors listed above. The contact wire is virtually sag free due to being supported by the messenger wire. Therefore, only waste and overage will need to be factored into the calculated length. Next, the equipment rate can be calculated using the hourly rates above. Using the hourly labor rates calculated earlier in this paper, the estimator would multiply that by the hourly rate for equipment usage to obtain the labor price per linear foot of wire. For example, for the messenger wire it would be: $\$46.03 \times .05 = \2.30 . Next, the estimator would add the linear foot cost of material, labor, and equipment. Then, multiply by the quantity of wire to obtain the total installed wire cost for each wire. The indirect labor cost is calculated in the same fashion as the equipment and multiplied by the total footage of wire. The indirect general conditions cost is calculated at 5% of the total of the messenger and contact wire line items. Bonds/insurance/permits are calculated the same as the general conditions. Overhead and profit are calculated with the sum of all of the previously mentioned items multiplied by the specified percent (i.e. 8% or 5%). Finally, adding the overhead and profit to the total equates to a final lump sum bid.

Section 10 : Glossary

Overhead Catenary System: Refers to all components related to the electrification of light rail construction, including but not limited to the catenary wire..

Messenger Wire: The power supply and support wire for the contact wire. This wire is feed from a power substation to a specified termination point. Typically, this wire is larger than the contact wire..

Contact Wire: The wire that feeds the panograph of the light rail train. This wire is supported by the messenger wire and has virtually no sag due to rigid metal hangers connecting the messenger and contact wires together.

Cantilever: A single insulated wire support assembly connected directly to a pole. These assemblies come in various configurations depending on the project design requirements.

Head-span: An insulated multiple wire support assembly connected directly to two poles. These assemblies come in various configurations depending on the project design requirements.

Pull-off: An insulated assembly designed to pull the messenger and contact wire to a specific stagger from center of track. This stagger is specified by the design team. This is assembly is connected to one pole.

Backbone anchor: An insulated assembly designed to pull multiple messenger and contact wires to a specific stagger from center of track. This assembly spans between at least two poles.

Disconnects: A manually or remotely operated switch to energize/de-energize a specific line segment of track.

Counter-weight: An insulated assembly designed to hold a specific tension on the catenary wire at all times using a series of weights and pulleys.

DC switch-gear: Manufactured equipment that coverts alternating current to direct current.

PROFICIENCY PROVEN

You wonder if your future employee has all the skills and knowledge they claim. How can you be certain he or she knows exactly what they are doing?

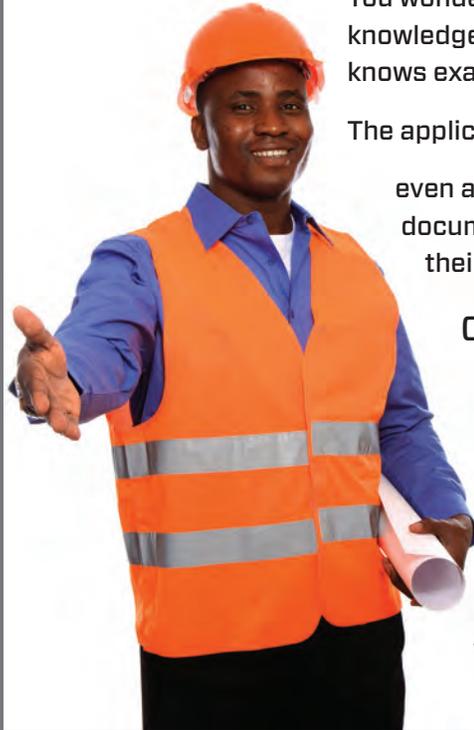
The applicant may have some field experience and possibly even a few years of estimating experience. Without documentaion or credentials, how do you validate their resume?

Consider a prerequisite for applicants.

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FACES OF ASPE: Paul Jonez, CPE

Chapter 5 – Denver – Chapter President
Golden Triangle Construction, Senior Estimator
Contact: pjonez@gtcl.net

Best advice I ever received

When I started out as a carpenter, I always followed Abram's advice from This Old House: "Measure Twice, Cut Once." Today in preconstruction, it still applies to plan ahead and check the details before finishing an estimate.

Best advice I share with young (and not so young) estimators

Be observant. Whether reviewing plans and specifications or looking at finished construction, understand how projects come together, so that the final estimates reflect a complete project.

Chapter goal for 2019

5 Members to earn their CPE designation!

If I wasn't doing this, I would

I'd have to be either a director of a summer camp or a full-time woodworker. Both require hard work with little compensation, but are lots of fun and immensely rewarding!



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ASPE CHAPTER MEETINGS

▶ ARIZONA

Arizona #6

Where: Double Tree Hotel
320 N 44th Street
Phoenix - 85008

Date: 2nd Tuesday; **Time:** 5:30 PM

Meeting Contact:

Gene Plum
gplum@mccarthy.com

Old Pueblo #53

Where: Varies
To Be Determined
Tucson

Date: 1st Wednesday; **Time:** 5:30 PM

Meeting Contact:

Trip McGrath, CPE
tripm@compusultinc.com

▶ ARKANSAS

Arkansas #33

Where: Baldwin & Shell
1000 West Capital Avenue
Little Rock - 72201

Date: 3rd Friday; **Time:** 12:00 PM

Meeting Contact:

Chuck Garrett, CPE
cgarrett@baldwinshell.com

NW Arkansas #79

Where: Varies
To Be Determined
Bentonville

Date: TBD; **Time:** TBD

Meeting Contact:

Carrie Morones, CPE
aspe.carri@gmail.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
lalofaspe@outlook.com

▶ CALIFORNIA (CONTINUED)

Golden Gate #2

Where: AIA East Bay
1405 Clay Street
Oakland - 94612

Date: 3rd Wed.; **Time:** 6:00 PM Social Hour

Meeting Contact:

Jeremiah Newens
jnewens@southlandind.com

Orange County #3

Where: Ayres Hotel
325 Bristol Avenue
Costa Mesa - 92626

Date: 2nd Wed.; **Time:** 5:30 PM

Meeting Contact:

Ron Svarc
president@aspe-oc3.org

San Diego #4

Where: Varies
To Be Determined
San Diego

Date: 3rd Tuesday; **Time:** 5:30 PM

Meeting Contact:

Mike Moyers, CPE
michael.moyers@bestinteriors.net

Sacramento #11

Where: Rancho Cordova City Hall
2729 Prospect Park Drive
Rancho Cordova - 95670

Date: 2nd Friday; **Time:** 12:00 PM

Meeting Contact:

Bryan Hall
bryan.hall@vanir.com

Silicon Valley #55

Where: Varies
To Be Determined
To Be Determined

Date: Varies; **Time:** Varies

Meeting Contact:

Alan Jacobs, CPE
alan.jacobs@blach.com

▶ COLORADO

Denver #5

Where: To Be Determined
To Be Determined
Denver

Date: 2nd Tuesday; **Time:** 5:00 PM

Meeting Contact:

Paul Jonez
pjonez@gtcl.net

▶ CONNECTICUT

Nutmeg #60

Where: Back Nine Tavern
245 Hartford Road
New Britain - 06053

Date: Varies; **Time:** 6:00 PM

Meeting Contact:

Harrison Levy
klevy@petraconstruction.com

Yankee #15

Where: To Be Determined
To Be Determined
Stratford, CT

Date: TBD; **Time:** TBD

Meeting Contact:

Gregory Williamson, CPE
gwilliamson@bondbrothers.com

▶ DELAWARE

Delware #75

Where: Varies
To Be Determined
Wilmington

Date: 2nd Wednesday; **Time:** 5:30 PM

Meeting Contact:

Estel Taylor
etaylor@albireoenergy.com

▶ DISTRICT OF COLUMBIA

Greater D.C. #23

Where: Jacobs
1100 North Glebe Road, Suite #12
DC

Date: 3rd Thursday; **Time:** Varies

Meeting Contact:

Maurice Touzard, CPE
mtouzard@gmail.com

ASPE CHAPTER MEETINGS (CONTINUED)

► FLORIDA

Tampa Bay #48

Where: Lee Roy Selmons
4302 W. Boy Scout Boulevard
Tampa - 33607

Date: 3rd Wed.; **Time:** 6:00 PM

Meeting Contact:

Bob Nidzgorski, CPE
bob.nidzgorski@skanska.com

Gold Coast #49

Where: To Be Determined
To Be Determined
West Palm Beach

Date: TBD; **Time:** TBD

Meeting Contact:

Carri Morones, CPE
aspe.carri@gmail.com

Orlando #50

Where: To Be Determined
To Be Determined
Orlando

Date: TBD; **Time:** TBD

Meeting Contact:

Danny Chadwick, CPE
dkchadwick@bellsouth.net

► GEORGIA

Atlanta #14

Where: Sage Woodfire Tavern
4505 Ashford Dunwoody Road
Atlanta - 30346

Date: 2nd Mon; **Time:** 11:30 AM 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 Thurs; **Time:** 6:00 PM Social Hour

Meeting Contact:

Bryan Mixer, CPE
bmixer_rvc@msn.com

► INDIANA

Central Indiana #59

Where: Varies
To Be Determined
Indianapolis

Date: 3rd Thursday; **Time:** Varies

Meeting Contact:

Matt Burress
mbures@performanceservices.com

Old Fort #65

Where: Varies
To Be Determined
Fort Wayne

Date: Last Thursday; **Time:** Varies

Meeting Contact:

Phillip Salisbury, CPE
psalisbury@blundall.com

► IOWA

Quad Cities #71

Where: To Be Determined
To Be Determined
Davenport

Date: Varies; **Time:** Varies

Meeting Contact:

Keith Parker, CPE
keithparker@circlebco.com

Greater Des Moines #73

Where: Varies
To Be Determined
Des Moines

Date: 1st Thursday; **Time:** Varies

Meeting Contact:

Ray Conway
aspe.ia.73@gmail.com

► LOUISIANA

New Orleans #9

Where: To Be Determined
To Be Determined
New Orleans

Date: TBD; **Time:** TBD

Meeting Contact:

Carri Morones, CPE
aspe.carri@gmail.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
To Be Determined
Baltimore

Date: Varies; **Time:** Varies

Meeting Contact:

Clint Townshend
ctownshend@phoenix-eng.com

► MASSACHUSETTS

Boston #25

Where: Maggiano's Little Italy
4 Columbus Avenue
Boston - 02116

Date: 3rd Wed.; **Time:** Varies

Meeting Contact:

Erick Vargas
evargas@garlandboston.com

► MICHIGAN

Detroit #17

Where: Visit www.aspe17.org
To Be Determined
Detroit

Date: 3rd Tuesday; **Time:** 5:15 PM

Meeting Contact:

Gerald McClelland
gmcclelland@auchconstruction.com

Western Michigan #77

Where: Varies
To Be Determined
Grand Rapids

Date: Varies; **Time:** Varies

Meeting Contact:

Mike Alsgaard, CPE
maalsgaard@ftch.com

ASPE CHAPTER MEETINGS (CONTINUED)

► MINNESOTA

Viking #39

Where: Varies

To Be Determined
St. Paul

Date: Varies; **Time:** Varies

Meeting Contact:

Keith Parker, CPE
keithparker@circlebco.com

► MISSOURI

St. Louis Metro #19

Where: Varies

To Be Determined
St. Louis

Date: Varies; **Time:** Varies

Meeting Contact:

Keith Parker, CPE
keithparker@circlebco.com

Heartland #32

Where: Uncle Buck's Grill or
Bass Pro Shops

See Meeting Contact

Date: 3rd Thursday; **Time:** 5:30 PM

Meeting Contact:

Gregory Wienberg, CPE
gmwfam5@gmail.com

► NEBRASKA

Great Plains #35

Where: To Be Determined
To Be Determined
Omaha

Date: Varies; **Time:** Varies

Meeting Contact:

Keith Parker, CPE
gmwfam5@gmail.com

► NEVADA

Reno #12

Where: To Be Determined
To Be Determined
Reno

Date: Varies; **Time:** Varies

Meeting Contact:

Stacie Flynn
staciewflynn@gmail.com

► NEVADA (CONTINUED)

Las Vegas #72

Where: Varies

To Be Determined
Las Vegas

Date: 2nd Thursday; **Time:** Varies

Meeting Contact:

Chuck James, CPE
wcj@clarkcountynv.gov

► NEW JERSEY

Garden State #26

Where: The Appian Way Restaurant
619 Langdon Street
Kenilworth

Date: Varies; **Time:** Varies

Meeting Contact:

Jeffery Senholzi
costnav@ptd.net

► NEW MEXICO

Roadrunner #47

Where: Fiestas Restaurant
4400 Carlise Boulevard NE
Albuquerque - 87107

Date: 1st Wed.; **Time:** 5:30 PM Social Hour

Meeting Contact:

Jimmy Sample, CPE
jimmy.sample@bixbyelectric.com

► NEW YORK

New York #10

Where: To Be Determined
To Be Determined
New York City

Date: Varies; **Time:** Varies

Meeting Contact:

Bruce Schlesier, CPE
bruce_schlesier@msn.com

Empire State #42

Where: Athos Restaurant
1814 Western Avenue
Albany - 12203

Date: Varies; **Time:** Varies

Meeting Contact:

James Madison, CPE
jmadison1@gilbaneco.com

► NEW YORK (CONTINUED)

Western NY #77

Where: To Be Determined
To Be Determined
Rochester

Date: TBD; **Time:** TBD

Meeting Contact:

Gregory Williamson, CPE
gwilliamson@bondbrothers.com

► OHIO

Buckeye #27

Where: Varies
To Be Determined
Columbus

Date: Varies; **Time:** Varies

Meeting Contact:

Keith Parker, CPE
keithparker@circlebco.com

Southwestern Ohio #38

Where: Varies

To Be Determined
Cincinnati & Northern Kentucky

Date: 3rd Thursday; **Time:** TBD

Meeting Contact:

Ileen Davisson
ileen.davisson@modspace.com

► OKLAHOMA

Landrun-OK City #80

Where: Ingrid's Kitchen
3701 North Young Boulevard
Oklahoma City - 73112

Date: 1st Wed.; **Time:** 11:30 AM Social Hour

Meeting Contact:

Phyllis Battle
pbattle@preconstructionservices.com

► OREGON

Columbia-Pacific #54

Where: University Place
310 W. Lincoln Street
Portland - 97201

Date: 3rd Tuesday; **Time:** 5:30 PM

Meeting Contact:

Craig Welburn
cwellburn@cherrycityelectric.com

ASPE CHAPTER MEETINGS (CONTINUED)

► PENNSYLVANIA

Greater Lehigh Valley #41

Where: To Be Determined
To Be Determined
Allentown

Date: TBD; **Time:** TBD

Meeting Contact:
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

Three Rivers #44

Where: To Be Determined
To Be Determined
Pittsburgh

Date: TBD; **Time:** TBD

Meeting Contact:
Gregory Williamson, CPE
gwilliamson@bondbrothers.com

Philadelphia #61

Where: To Be Determined
To Be Determined
Philadelphia

Date: 3rd Wednesday; **Time:** Varies

Meeting Contact:
Jay Kellogg, CPE
jaykellogg@kel-con.com

Central Pennsylvania #76

Where: Loxley's Resturant
500 Centerville Road
Lancaster - 17601

Date: 2nd Wed.; **Time:** 6:00 PM Social Hour

Meeting Contact:
Dan Dennis, CPE
dd@EGSConstruction.com

► TENNESSEE

Middle Tennessee #34

Where: Adventure Science Center
800 Fort Negley Boulevard
Nashville - 37203

Date: 1st Friday; **Time:** Varies

Meeting Contact:
Ricky Sanford
rsanford7159@gmail.com

► TEXAS

Houston #18

Where: Spaghetti Westerns
1608 North Shepherd
Houston - 77007

Date: 2nd Monday; **Time:** 6:00 pm

Meeting Contact:
Dennis Pyland
dennis.pyland@gmail.com

Rio Grande #40

Where: Ray's at Pershing Inn
2909 Pershing Drive
El Paso - 79903

Date: 1st Thursday; **Time:** 6:00 PM

Meeting Contact:
Rodolfo Barba, CPE
rodolfobarba1@gmail.com

Dallas/ Ft.Worth #43

Where: See Chapter Website
To Be Determined
Varies: N. Dallas/Mid-Cities/Grapevine
Date: Varies; **Time:** Varies
Meeting Contact:
Rick Wyly, CPE
rick@buildcostcontrol.com

► UTAH

Great Salt Lake #51

Where: Varies
To Be Determined
Salt Lake City

Date: 3rd Thursday; **Time:** Varies

Meeting Contact:
Phil Capell, CPE
president@aspe51.org

► VIRGINIA

Richmond #82

Where: Baskervill
101 South 15th Street, Suite #200
Richmond - 23219

Date: 4th Wednesday; **Time:** 5:00 PM

Meeting Contact:
Mark Pitts
mark@haleyshope.net

► WASHINGTON

Puget Sound #45

Where: Best Western Executive Inn
200 Taylor Avenue North
Seattle - 98109

Date: 3rd Tuesday; **Time:** TBD

Meeting Contact:
Mike Booth
mike.booth@msn.com

► WISCONSIN

Brew City #78

Where: To Be Determined
To Be Determined
Milwaukee

Date: Varies; **Time:** Varies

Meeting Contact:
Keith Parker, CPE
keithparker@circlebco.comz

Please Note: Information is subject to change. Report changes in your Chapter's information with an email to jennifer@ASPEnational.org

ASPE CORE VALUES

EDUCATION:

ASPE educates and mentors professional estimators for the sustainability of the construction industry.

PROFESSIONALISM:

ASPE promotes the lifelong pursuit of excellence and credibility in professional estimating.

FELLOWSHIP:

ASPE develops a fellowship of professional estimators that connects and leads the construction industry.

