

### THE ACADEMY OF ELECTRICAL CONTRACTING

## PAPER PRESENTED BY FELLOW JIM JOHANNEMANN ('15)

# AMPING UP SKILLS: NECA'S EDUCATIONAL PATHWAYS FOR ESTIMATORS AND ADMIN PERSONNEL AN OVERVIEW OF NECA-OFFERED ESTIMATING COURSES

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#### About Jim Johannemann

Jim has 55+ years of experience in our Electrical Industry. He started as an indentured apprentice in New York City in 1969 and hasn't worked at anything else since.

Jim progressed up through the ranks, working in the field for 24 years as an apprentice, journeyman, foreman, general foreman, and superintendent. In 1993 he became a Vice President overseeing estimating and project management in a NYC NECA Electrical Contracting Firm.

It wasn't long before He moved to the Hudson Valley in New York and became the President & CEO of a regional NECA contractor with responsibility for all operations.

#### Achievements

- Journeyman Electrician Local Union #3 IBEW
- > BA State University of New York
- > President of NECA Hudson Valley Chapter from 2001 to the present
- > Fellow in the NECA Academy of Electrical Contractors (2015)
- Master Electrician licensed in Multiple Counties in New York State including New York City, New Jersey, and Connecticut
- Past Member of the National NECA Safety Task Force (8 years)
- Chairman of the NECA Manual of Labor Units Task Force
- > Development of the current Basic Estimating and Advanced Estimating Strategies course materials.
- NECA Estimating Training Faculty, presenting Basic and Advanced estimating courses in person and virtually to over 1500 students.
- > Presently working as a Senior Consultant with Firestone Consulting Group, Lincoln Nebraska.











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#### Old Customer, New Plant Manager

You have been asked by a long-time customer to provide a bid on a new production line in their facility. There are only two bidders on this project. You and a non-union competitor who has been nipping at your heals for years to become the contractor of choice at this facility. Although there are two to three other contractors that do some small projects for this customer, you are their number one choice.

You have been working in this facility for more than ten years and know it like the back of your hand. Within the last month, the plant manager you have worked with for the past ten years retired, and you have never worked on a large project with his replacement before. While the new plant manager has worked for the parent company for years, she is new to this facility and doesn't know the history and players who have worked here in the past.

In the meeting with the plant manager, she describes the new production line project, and nothing seems out of the norm from other work you have completed for this customer. However, when you get back to your office and dive into the bidding documents, you realize this project is a different kind of animal. As you read through the specifications, the lists of requirements for safety, training, certifications read like the index of Wikipedia. Not only do they require you to supply a site-specific safety manager, but they also want you to include the cost of a third-party safety compliance office to ensure your meeting the safety requirements of the specifications.

As you read further, you come across a section titled Good Manufacturing Practices and Good Housekeeping Practices (GMPs & GHPs). The documents are lists of limitations and what not to do in the facility. Violations of these requirements are grounds for removal from the facility.

Part of the GMP's requirements is for a tool accountability program. The contractor is required to account for every tool at the beginning and end of each shift. Every tool must have a specific place where it is stored that allows for quick identification if the tool is missing. Hand tools shall be stored in toolboxes with foamed drawers with labeled silhouettes cut out for each tool. The foam liners shall be black, closed-cell foam on top of a red drawer liner so that missing tools leave an open hole showing the bright red drawer liner.

At the end of each workday, the work area must be free of all loose materials, tools, and waste. In essence, it should look like no one is working there.

Based on the non-union contractor's history of bidding against you, you know they do not have the best track record for completeness in their work. In fact, you have had to go back and fix some of their previous work to bring it up to the plant's standards. Unfortunately, "low dollar" is the driving force for this owner when bidding projects, total value, experience, etc. do not play into their decision-making process.

You already have some other projects going in this facility, but they will be wrapping up in the next six to eight weeks. This is a showcase project for this plant, and the contractor who gets this project is sure to win over the new plant manager if they perform well.

#### We're Not in Kansas Anymore

An existing customer of yours is expanding its operations to a new market. They have asked you to bid on their new maintenance and repair shop, which will be the heart of this new facility. This customer looks at the full value the contractor brings rather than just low dollar. Similar to previous projects for this customer the desire is to have the electrical contractor work in a design-assist relationship with the electrical engineers. From previous experience, you know this has allowed you to provide input on materials and manufacturers to help manage the costs while still making a better than average profit on the project.

The location for the new facility is more than 1,000 miles from your current office so logistics could be a challenge. You know there are other NECA contractors in the area, but the non-union has a larger share of the market. Work is plentiful in the area, and there are not many electricians on the books. On the upside, your favorite supplier is a national distributor and has a location 15 minutes from the job site. While the customer looks at the total value of the contractor, budgets are budgets. They want you to do the work, but the price must be right.

You have worked for the project's general contractor before, but they are not as value-driven as the owner. The opinion they have is if they can get the work done for less, then that means more money in their pocket.

The electrical engineer is the same firm you worked with on the last facility you built for this customer. You both worked well together before, and you are happy to see another friendly face on the project team again.

Similar to the proposition given to you, the mechanical sub-contractor is also local and will have to travel to complete this project if awarded. You have had a great working with this contractor in the past and work to help each other maintain the schedule.

Another concern is that the location of the new facility is in a colder climate and has a much shorter construction season than you have at home. They hope to break ground on the new facility in late July, but the building will not be enclosed by winter. While the last few winters have been mild and some works has been done throughout the winter months, there is the potential for heavy snowstorms of six or more inches, and accumulation of more than two feet in bad years.

You like working with this customer and see this as an opportunity to potentially expand your operations. However, you still need to make money at the end of the day.

#### A Model Hospital Project

Your company has had success in the past with work at some of the rural hospitals and healthcare facilities around the city in which your office is located. Most of these projects have been within 100 miles of your office. Your success is mostly because the electrical contractors in these areas are not large enough or have the experience with these sizes of projects. Once you get outside of the "city," there is not a union contractor to be found.

You catch wind of a new regional hospital being built in a rural community 200 miles from your office. As you read through the bidding documents, you notice the requirements for BIM (Building Information Modeling), and the schedule fits perfectly with another hospital that you will be finishing up. So, your crews will be in the hospital mindset.

Just as with the other rural hospital projects you have completed, all your competition will be non-union contractors. The upside is that you have the capabilities to do the required BIM work in-house. Knowing who the other bidders could be, you are sure none of them have in-house BIM capabilities. In fact, some may not even be able to spell BIM.

Three construction managers are bidding for the project. The front runner is a contractor you have done several projects with, some have turned out great, and others you would just as soon forget about. You have done one project with one of the other construction managers, and it turned out okay; you made a profit, and the CM was happy with your work. The third construction manager is coming in from out of state on the recommendation of the architect for the project. You do not know much about them other than they travel around the country building hospitals in smaller communities.

The town where the project is located is not huge but has options for lodging and other accommodations for your workforce. You are in luck, one of the local supply houses you regularly use has a location in the town where the project is located. While this location is not as large as the one close to your office, you have a good relationship with the company and know they will be able to get the materials you will need.

With the project being 200 miles away, it is not feasible for your crews to commute each day, so you will have to account for lodging and pay a daily per-diem. Work is starting to pick up in your city, so there might be challenges getting electricians who want to travel for the next year and a half to two years.

Another addendum is issued two days before the bid, eliminating the requirement for BIM on the project. One construction manager has convinced the owner that they do not need to spend the extra money for BIM, so now it is an add alternate to the base bid.

#### **USA's Secret Layer**

A local air force base is building a new secured bunker for use as a secret underground war room should the US come under attack. You have done work at this base in the past and are familiar with the security protocols, and background checks your employees will have to go through.

Since this is an extremely high-security project, you have to sign a confidentiality agreement to receive your one set of prints and specifications. The agreement explicitly states that you are not to duplicate, scan, or electronically distribute any of the bidding documents. Included in the set of documents is a use log that must consist of the names and signatures of any of your employees who use the documents in preparation of your bid.

As you explore the bidding documents, you realize that the project is for a secure bunker located sixstories below grade. Due to the nature of this facility's security, all of your tools, materials, and employees will be inspected daily as they come to and from the job site. A few other projects are currently under construction on the base, so the contractors' entrance can get pretty congested in the mornings and afternoons. You have heard that it can take more than an hour to get through the security checkpoint some days.

While the bidding documents seem to be complete and not a lot of information lacking, the electrical design is pretty dense and has many redundant systems. The finished space at the bottom of the six-story hole is only 2,500 square feet, so it appears that there really will be "stacking of the trades" on this project. You may not need ladders if you can stand on each other's shoulders.

Being on a US military base and federally funded, the Davis Bacon wages must be paid for this project's labor. There is also a requirement of 20 percent DBE participation for the entire contract, not each trade, but the contract as a whole.

You know of three other bidders on the project—another union contractor who bids against you on every project on the base and two non-union contractors. One non-union contractor is a veteran-owned contractor but is small, just himself and one other electrician.

The project's schedule requires the new construction to be enclosed before winter so finish work can start. The overall schedule is eight months, but you will probably only have five full months to complete your scope of work as the electrical contractor. The sophistication of the communications and security systems will require a lot of work at the very end of the schedule. Liquated damages are stated at \$2,500 per day beyond the completion date specified.

#### The Hospital with Multiple Relationships

You have been asked to provide a GMP (guaranteed maximum price) price for a massive hospital expansion. Many things are going your way with this project. You just finished another hospital with the same general contractor. The electrical engineer is the same for this project too. Even the project's size is within 5,000 square feet of the previous one, so you feel that you have some reasonably good data to develop your GMP price. Having this useful data is essential because all that is available to you to develop your price is a 20-page narrative (description of the project) and an architectural floor plan of each floor for the new addition.

The RFP (request for proposal) is asking you to provide a GMP budget for the electrical and low-voltage work on the project, as well as a list of any potential value engineering ideas you have. Also requested in the RFP are your proposed project team's resumes, your approach to the project, examples of similar projects, and letters of recommendation from previous projects, general contractor or owner is preferred.

Although you have experience with the general contractor and electrical engineer, it is for only one previous project. Both the general contractor and electrical were good to work with, and you would like to work with them again. However, there is not a long track record with the relationships, so you do not know how much weight your previous performance has in the decision-making process.

From a logistics standpoint, the site is rather crowded, so there will only be room for a single jobsite trailer and a few jobsite vehicles. There is not much space for onsite storage, so you will have to store materials offsite and deliver them to the site as needed. One plus is that your office is less than a mile away, and you have a fair amount of space in your yard and warehouse to store some material.

A challenge with the project is that the project schedule is 30 months and will be over two potential wage increases. The RFP documents clearly state that you are to provide the labor rates that you will use throughout the project duration, and no increases in the agreed-to rates will be allowed.

There are only two other competitors on the project, both of which are union contractors. The first contractor is from out of town, and you have heard that the GC loves doing projects with this contractor. They have even promised that the GC can pick the electrical project manager and superintendent for the project if they are awarded the project. The other competitor is a local contractor. While they currently handle this owner's service work at the hospital, they have not done any major project for this hospital. For that matter, they do not have any experience with large hospital projects.

You feel that you have the right team, the right experience and can provide a very accurate budget, remember, you just finished a similar project within the past six months. The GC does not unlike you, but you do not have the relationship that the out of town electrical contractor has with the GC. The electrical engineer is in your corner, but you are unsure how much weight they pull in the overall decision-making process.

This project would be great for your company, not only to get your foot in the door with the hospital but is a high-profile project in the community as well. While there is work in the area, you could use some backlog going in the future.

#### **Ethanol Plant Close to Home**

You have been asked to provide a bid for a new ethanol plant located about 35-miles from your office. You have done a few other ethanol plants and have a crew familiar with the requirements and working with the materials and equipment needed to complete the project.

While the project location is only 35-miles from your office, the site is undeveloped, and there are only dirt roads leading to the site. Based on the bidding documents, you will have to coordinate with the local utility to bring power to the site. There is no clear scope on the responsibility of the electrical contractor, the local utility, and the new plant owner.

There will be multiple prime contracts awarded for this project. Electrical, mechanical, and a general contractor will all have contracts with the owner. There does not appear to be a clear chain of command, so some disagreement around who is calling the shots is the potential for some disputes.

Your competition on the project is two out-of-town electrical contractors that are not familiar to you. With some research, your competition shows that they both have experience in ethanol plant construction and other industrial types of projects. Both will be traveling more than 200-miles to the site.

While the site is relatively close to where your office is, it is in another town. The nearest town has only a few hundred people. All your materials and equipment will have to be bought and shipped or transported to the site from the town your office is located. Having experience with similar projects, you do not see this as a significant factor. Still, you do know that your vendors will probably charge you a trip charge for any deliveries due to some grumblings you heard on the last project.

Looking at the project schedule, they plan to work year-round to get the facility online as soon as possible. Your crews are used to working in the various seasons and are not afraid to put on their coveralls and glove and work in the cold. To get the facility online and produce ethanol as soon as possible, there is an incentive of \$10,000 per day. This incentive is to be split among the contractors but does not clearly state how much each contractor gets.

The owner of the plant is unknown to you. They said they found you when they did a Google search. It appears your marketing efforts are paying off. You have done some research on the owner but have yet to find out much about them. Other than a one-page website with a mailing address and phone number, there is not much information about them. From what you can tell, the company is a holding company based in the Bahamas.

Work is plentiful in your local market, and it looks to be that way for the foreseeable future. Most of this work is commercial work. You know that your industrial electricians can do the job but do not typically work as efficiently as the electricians who do commercial workday in and day out. They aren't excited about bending <sup>3</sup>/<sub>4</sub>" EMT when they are used to working with GRC feeders and big pieces of equipment.

This project is definitely in your wheelhouse, and you already know who you would put on the job if you are awarded it.

#### New Project, Renewed Opportunity

A customer you have done work for in the past is putting an addition on to their existing facility, more than doubling the original building's total square feet. While this is an existing customer, you have not done any major project for them in the past 10-years and have only done \$10,000 in service work over the last three years.

While you have not done much work in this facility in the past few years, you have done work in similar facilities for other customers. You feel that your electricians can do this size project, but it will tax your resources with the project's short schedule and scope. At its peak, there is a possibility that you will need to hire more electricians even if you put almost all your employees on this project. While this is not for the entire duration of the project, it puts a lot of eggs in one basket, even if it is for a short period.

This is a fast-tracked project, and the documents are a bit lacking in the level of completeness. The owner has ensured all the bidders that they know this and will consider the incompleteness when evaluating the bids. While there is no guarantee, there is the potential to provide input to the final design and help manage costs.

The owner has stated they will be acting as the construction manager for the project. For this reason, they will be awarding multiple prime contracts, all answering directly to the owner. While they say they are looking for total value, your gut tells you that the bottom dollar will be the one that gets the job.

Adding to the complexity of the contractor and owner relationship, a local company no longer owns the facility. Two years ago, they sold to a group of investors from Japan who are now the owners of this facility and other similar facilities around the country. The plan is for the owner to have an onsite project manager. Concern surrounds how business may be conducted due to a language barrier and cultural differences with the project manager.

The project meetings will be held via video conference with the project manager and the owners' team in Japan. Email is the preferred communication method, but you have found that there are delays in getting responses. In some cases, you have waited two to three days for an answer.

With the new financial backing from the owner, you know there will be more work to come in this facility. Mainly in renovating the existing parts, but there are rumors that there will be another expansion in the next two to three years if this location continues to perform for the owner. The owner has also expressed interest in developing relationships with contractors who are willing to travel to their other facilities around the country. Their idea is that this will create consistency throughout all their facilities and allow them to operate using LEAN manufacturing principles.

#### Fire, Fire, Fire, Fire

The community where your office is located is proposing to build four new fire stations in the next 36months. While there are some minor differences, each station is pretty much identical to each other. The main differences are how the new stations will sit on their respective sites and some other site related items. The city has announced that they have enlisted the services of a sole construction manager for all four stations. The construction manager will help the city evaluate the bids and ultimately manage each new station's construction, with none of the work being self-performed by the construction manager.

You have done a handful of projects with this construction manager, and other than a city office building, all the other projects have run pretty smoothly. There are project schedules for each new station and an overall schedule showing all the projects together. Once the first one is roughly 75% complete, the second station's construction will begin, and this pattern will continue until all four stations are complete.

Looking at each project individually, just about every electrical contractor in town could do the work if it were only one station. In all reality, it is a light commercial/ heavy residential facility. The upper leg you have is you have the resources to be able to do all four of the stations without straining any of your resources, manpower, bonding, cashflow, etc.

Looking at some of your personnel, you have a young assistant project manager and up and coming journeyman who could get some great experience without putting your company at too much risk. They could easily roll from one project right to the next with just a little extra assistance with the schedules' overlap.

Before the bid, the city holds a prebid meeting at the office of the construction manager. When you attend the meeting, you see two other union electrical contractors at the meeting. Additionally, when you look at the sign-in sheet, you see three other non-union electricals, one is pretty good-sized, and you have competed with them over the years. The other two are smaller contractors, Chuck and a Truck Electric and My Three Sons Electric. You have never seen either of these two contractors bidding on any job of size and aren't sure if they have ever bid work for the city.

During the meeting, the city's purchasing agent states that the bids will be submitted and received using the city's online bidding portal. The city and the construction manager will review them before making the final decision to award the project. It is also stated that each fire station will be bid independently, meaning that the city has the option to award the stations individually or more than one to a given contractor (i.e., one contractor could end up with all four stations, or just one, two or three of them). In addition to providing a bid for each station, the contractors can offer cost savings if more than one station is awarded to them. For example, the contractor may give the city a discount of \$5,000 for each additional station they are awarded.

You have wanted to start a prefab shop, and with the repetitiveness of the work, you see this as a prime opportunity to get your prefab shop up and running.

### NOTES

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