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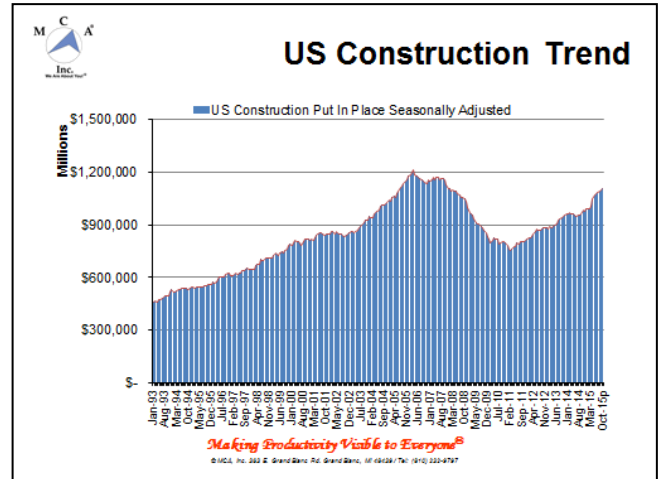
We make your company more productive by applying: Lean Engineering, Manufacturing, and Service Processes

*Making Productivity Visible to Everyone®*

We Are About You!®

### Expert in Multiple Markets

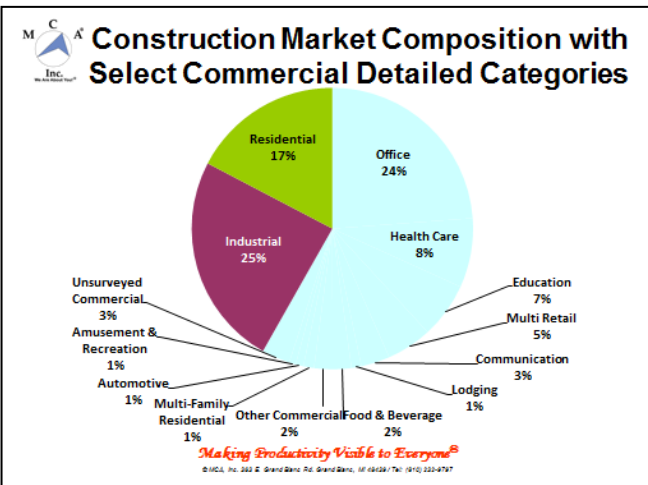
So you've cut your teeth, and made a name for yourself by carving out your own special niche in your local market. You're now known as the go to contractor for your specialty and it's taken years for you to achieve that stature. You've watched the market fall and weathered the storm. Now you've been paying attention to the market around you, and while it's coming back



you have a feeling the market is shifting and not coming back in areas that have been strong holds in the past. You're suspicious that other markets are taking off, but aren't sure they are worth pursuing. You would like to expand into other markets, but that means expanding outside of your niche market and venture into uncharted waters. All the while still feeling a little jaded from your last experience, which ended up costing you six figures off your bottom line, and you're still really not sure what went wrong.

### Measure the Work Available

You remember reading newsletters and published articles a few months back talking about the construction market, and how there is a direct correlation between the value of Construction Put In Place (CPIP) and Electricity End Use (EEU). The relationship between EEU and Gross Domestic Product (GDP), as lead



indicators, and CPIP is well documented. EEU is closely related to GDP, and its usage relates directly to the

production of goods and services. This relationship can be used to accurately determine the size of the construction market within any segment. The relationship between these 3 factors, construction market cycles, and other key market indicators can be used to accurately identify the market size across various areas of construction.

The problem with this is paying your labor a higher wage doesn't translate to an increase in market share. This methodology was developed by MCA Inc. as commissioned by the ELECTRI Council in 2005.

It was based on the following criteria:

1. Remain neutral and unbiased, applicable nationally, yet be extendable to the local level.
2. The data sources had to be impartial, consistently reported, reliable, and accurately measured.
3. The method must be easy to understand and use.
4. Allow for the segregation of work, recognizing both existing and emerging markets.

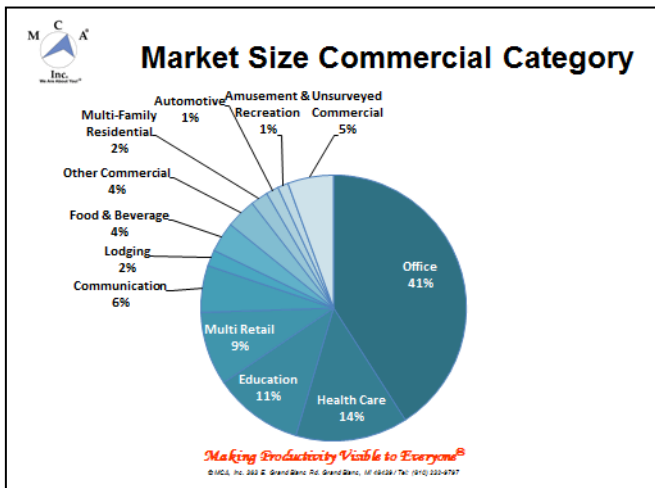
MCA Inc. met these criteria by developing a method to measure the construction market size in 30 separate trades down to the county level. The methodology begins with using CPIP as the basis for the construction market size. EEU is then used to scale the market by its segments industrial, commercial, and residential.

### **Find Market Opportunities**

So you find out your overall construction market and the size of the industrial, commercial, and residential segments in your geographic area for the past 5 years. Next, you focus on the overall size of the industrial, commercial, and residential segments of your specific trade within your geographic area. Looking at the results you see that your market is predominately commercial and residential, with not as much industrial work as you had previously thought. You've had a feeling that the commercial market had shifted to be the predominant segment in recent years, and these results have confirmed your suspicions. Comparing your sales over the past 5 years to the overall market and within each market segment, will provide you with

the trend of what your market is doing and whether you are you growing with it or not. Let's say that the trend in the commercial segment shows that you haven't been growing your sales with the market. The million dollar question you're asking yourself now is, "what market do I go after next?"

You look at a list of the 21 detailed market categories and 4 sub categories of the general commercial market comprising of industrial, commercial, and residential segments. After some deliberation you decide



you would like to segregate your market into what you believe are the largest components of your commercial market. With the figures in, all of the selected markets appear to be on the rise. Office, education, and the general commercial detailed market categories not only top the list, but are actually larger than your own niche market of healthcare.

## Tackle the New Market

Excited about the new market opportunities available to you, you can now begin to strategically plan and go after the work in these categories. At this point you could send your estimators out and bid on every job that pops up in your targeted markets, but just like everyone else you're bidding against, you are going to have similar material, equipment, and overhead costs. The one area that has the most variance between bidders, and profitability is going lie within your labor costs. There are 2 factors that you can influence to impact and reduce your labor costs:

1. Productivity
2. Composite Crew Rate

You could go after these jobs using the same crew mix and expected productivity that worked in the healthcare market, but how do you know what your competition is doing? Perhaps the most crucial, yet

under looked facets of expanding into changing or emerging markets is tracking your productivity and crew mix.

First we're going to look at increasing your job productivity and reducing your labor cost by externalizing work® from the jobsite. MCA, Inc.'s research and data shows that electricians spend 40% of their time handling material on the jobsite; and they run into obstacles on 9 out of 10 tasks that they schedule to finish Daneshgari, D. & Moore, H. (2015, October). *Optimize Jobsite Material to Improve Productivity & Cut Costs*. Let's look at the gains that can be achieved just with planning and prefabrication alone. In this scenario, we begin with a project with an estimated labor budget of \$1.4 million and 20,000 hours. With the numbers above, this means the crew will spend 8,000 hours either receiving, moving, unboxing, looking for, ordering, and more activities related to material handling. By having material flow through a prefab operation to be uncrated, checked for damage, pre-assembled, kitted, and packaged for the most effective movement to its final installation location onsite, we have seen that 8,000 hours drop by more than half. Furthermore, by measuring productivity using ASTM Standard E2691 for Job Productivity Measurement, you will see what is impacting your productivity on a weekly basis and be able to respond immediately to any deviations. So, if you are going into an unknown market, make sure you follow the principles of Work Breakdown Structure Daneshgari, D. & Moore, H. (2014, October). *How to Manage Your Job Using Work Breakdown Structure* to plan the work as much as can be known up front, then track against that plan to learn and adjust quickly.

The second tool you have to succeed in the new market is to look at using a lower composite rate. Let's say on the same job you just won, you have an estimated composite rate of \$70.00. By doing the WBS and having your field leader evaluate all the activities for who should do what, you plan to reduce your composite rate to \$65.00. This will allow you to pick up \$100,000 on profitability. In addition, your supervisors and managers estimate they can prefab 15% of this project, with the prefab shop having a

composite rate of \$50.00 an hour, your prefab labor cost on this job will be \$150K. This reduces your field labor costs by \$1,190K, effectively bringing your labor costs in at \$1,340K resulting in a savings of \$60K. By successfully implementing both a reduction in your composite rate and prefabrication, labor savings of \$160K are definitely achievable on this project.

After examination of the open market composite rate in the office category, you see that you need an 8% reduction in your composite rate to be competitive. This is where most owners start shaking their heads and say “I can’t reduce their pay.” However, making adjustments in this area doesn’t necessarily have to come from reducing an individual’s pay, but rather improvements can be made by making adjustments in your crew mix. Let’s look at the effect of simply bringing on a couple of material handlers to move material for your higher skilled workers, thereby allowing the skilled worker to stay focused on the direct installation of the materials at hand. This can have an immediate effect on lowering your composite rate as shown in the tables below:

Table 1

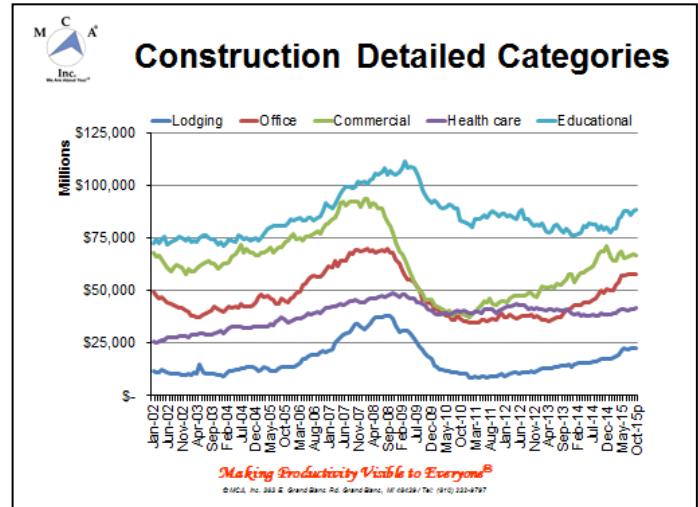
Apprentice	\$50/hr. (fully loaded labor rate) x 5 workers
Journeyman	\$98/hr. (fully loaded labor rate) x 2 workers
Foreman	\$114/hr. (fully loaded labor rate) x 1 worker
Composite Rate	\$560 per hour total / 8 workers = \$70.00 per hour

Table 2

Material Handler	\$28/hr. (fully loaded labor rate) x 2 workers
Apprentice	\$50/hr. (fully loaded labor rate) x 3 workers
Journeyman	\$98/hr. (fully loaded labor rate) x 2 workers
Foreman	\$114/hr. (fully loaded labor rate) x 1 worker
Composite Rate	\$516 per hour total / 8 workers = \$64.50 per hour

In Table 1 the \$70.00 per hour composite rate for the 8 man crew is calculated as the total hourly rate for the crew divided by the total number of men on the crew. Table 2 shows the effect of changing the crew mix by

reducing the number of apprentices by 2, and including 2 Material Handler's. While the number of men on the project did not change, your composite rate for your crew on this project is reduced by 8%. Using this crew mix from our 20,000 hour project and composite rate from table 1, your labor costs would be \$1.4 million. By changing the crew mix



and reducing your composite rate to Table 2, your labor costs on the same job would be \$110,000 less. This reduction would be enough to actively compete and win against other contractors who have made this their specialty.

You can improve your estimation accuracy and have more accurate bids by utilizing specialized tools like JPAC<sup>®</sup> (Job Productivity Assurance and Control, JPM-ASTM Standard E2691) a computer-enabled process designed to measure, predict, and improve productivity versus a set of construction budget goals set from the perspective of the field according to how your foreman sees the work. In addition, SIS<sup>®</sup> (Short Interval Scheduling) validates JPAC<sup>®</sup> productivity measurement and identifies the root causes of special events on the job. This allows contractors to react to project changes with increased agility and responsiveness.

Dr. Perry Daneshgari is the President/CEO of MCA Inc. MCA Inc is a research and implementation company that focuses on implementing process and product development, waste reduction and productivity improvement of labor, project management, estimation, accounting, and customer care. He has also published four books and an ASTM Standard for Job Productivity Measurement.

Dr. Heather Moore is Vice President of Operations for MCA Inc. She holds a Ph.D. in Construction Management from Michigan State University. Additionally she holds an MBA from University of Michigan, Flint, and a B.S.E. in Industrial and Operations Engineering from the University of Michigan, Ann Arbor. She was a contributor for the ASTM Standard E2691 “Job Productivity Measurement” and also was co-author of the newly published ASTM book “Application of ASTM E2691 Standard Practice for Job Productivity Measurement in Agile Construction<sup>®</sup>.”