

## Construction Productivity is at a 15-Year Low: Why?

By Matt Stevens

How can construction productivity be lower today than it was fifteen years ago? During this recession, companies have eliminated marginal employees, leaving core ones who are now cross-trained more. With all the advances in professionalism, methods, technology, and human resource training, we should have seen an increase in our productivity as other industries have enjoyed. However, this has not happened. Instead, with the exception of a brief upsurge in 2009, possibly attributable to the American Recovery and Reinvestment Act of 2009 (ARRA), productivity has steadily declined since 2005, currently measured to be lower than it was in 1997 (see Figure 1). How is this possible?

We assert that there is a significant misalignment in the construction industry. The misalignment is between the construction service buyer's (project owner) focus on project *production* and the contractor's (general contractor and subcontractors) need for job *productivity*. We have observed this misalignment is rarely addressed openly by the opposing parties. But in our view, this is a critical issue of the decade that needs serious consideration.

Construction service buyers with an inordinate focus on compliance to the letter of contract requirements, regardless how much money this costs the contractors and their subs, may remain unengaged in constructability issues or the smooth transfer of information between them and the contractors. They feel little responsibility for the process, remaining content to demand results without their cooperation to assist in getting it done. Legacy specifications and plan details may lack necessary updates. They may inconsistently process submittals. Consequently, Request for Information (RFI) responses may be late impacting crucial segments of the construction process. There may be no iterative method by project parties to ensure that a complete and constructible set of plans is created. Project owners with an unhealthy production focus may attempt to "manage" the project by Email, spending minimal time in face-to-face meetings.

This runs contrary to recommendations by experts in the field. Pocock, Kuennen, Gambatese, and Rauschkolb state that the "The single most frequently listed obstacle to constructability was a lack of open communication between designers and builders. Owners in particular can create opportunities for more open communication by selecting appropriate contract types, project delivery methods, and project partnering, and by requiring a formal process that incorporates construction experience early in the project" (2006).

On the other side of the coin, when productivity is the primary focus by the project team, the contractor's labor, material, and equipment that are dedicated to a project produce significant progress each month. Productive construction materializes in billings that are higher than cost incurred. As you know, employee productivity must be focus of contractors for their business to survive.

In view of productivity decline, we conclude that those who seek only that their projects are built without much hassle, and care little for contractor efficiency, must be winning the battle between production demand and dedication to quality productivity. The data show the decline of the productivity rate for the construction contracting industry as measured in constant (inflation adjusted) dollars.

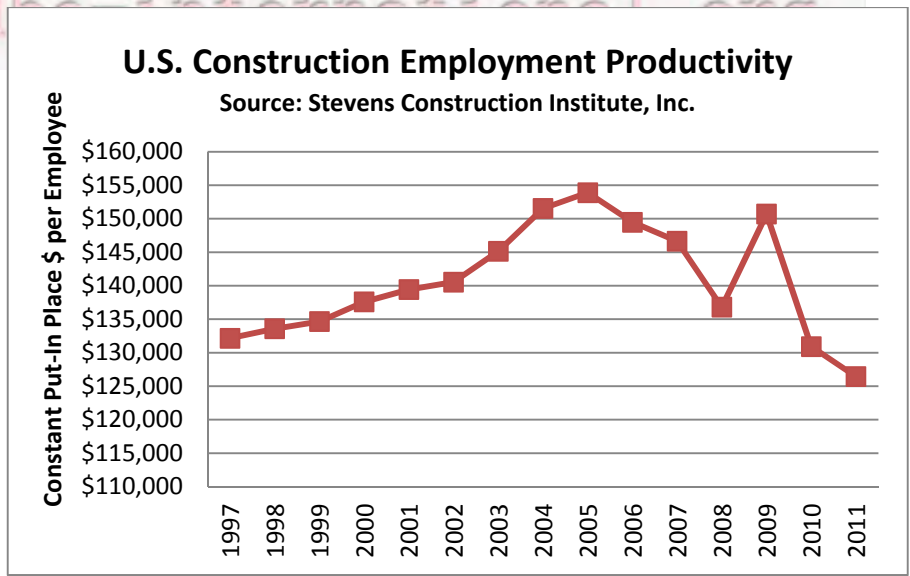


Figure 1 – Construction’s productivity (PIP \$ per employed person) is lower than 15 years ago as measured in constant (inflation adjusted) dollars.

### Perceptions and Changes

One significant cause of this conflict lies in differing expectations between parties in the construction process. A recent study employed an expert panel to determine roles and responsibilities of owner managing contractor (OMC) processes (Elbarkouky and al Fayek, 2011). They discussed who should execute 46 tasks, the owner or the contractor. Results showed that the six tasks listed below were considered “impossible” to determine:

1. Preparing the project’s organizational chart as a part of the execution plan
2. Integrating the execution schedule with the cost estimating and cost control
3. Determining estimate basis for facility components
4. Keeping records of the summary of charges as reflected by cost accounts
5. Finalizing the front-end engineering design (FEED)
6. Preparing the design requirements standards

The organizational chart (1), integration of execution and cost (2), and the two design responsibilities (5) and (6) are especially noteworthy. These tasks are pre-project planning activities. The nature of the issues on which agreement could not be reached points to an unsettled relationship between the construction service buyer and construction contractor on critical areas affecting productivity.

Other research found that these shareholders disagree on 46% of the duties that a Construction Manager should undertake (Arditi & Ongkasuwan, 2009). Furthermore, this may signal conflicting expectations between prime contractors and their subs.

Research published last year states, “Neither partnering, design build contracting, project management, nor construction management provide a mechanism to structure work beyond allocating by discipline or craft or to manage work itself. Rather, all rely on the critical path schedule to establish when work will take place and on enforcing the terms of the commercial contract to direct its execution”. (Howell et al. 2011)

Multiple changes in the industry include more regulation, increased litigation, and project owners becoming more sophisticated and demanding (Owers et al. 2007).

Whether productivity or production the primary focus is a choice that will have a stark impact on the industry. To avoid owners who have an unrealistic focus on production, contractors with high craft skill and project savvy will seek clients who are concerned with creating a project that is realistic in design and well built at the end. These construction firms are mostly silent about the issue, quietly choosing to work with owners who understand the dynamic. These contractors' attitude is that if they have to explain it to a client, they should not. It would be a long conversation and one that probably won't change minds. So, they see little need to waste time discussing the issues. Instead, they quietly target productivity enlightened clients.

This type of thinking may be evolving into specialty contractors' thinking. A longtime client of ours has a large metropolitan area market, yet presently works with only sixteen of thirty general contracting/construction management firms. His reasons are simple: the productivity of all of his people is critical if he is to continue to survive, and the remaining fourteen of the thirty don't provide that.

Our observation has been that in 100% of the cases, contractors will offer productivity-focused owners and designers better pricing and more attention to their projects. This is a rational approach. Several studies over the years conclude that at least 1/3 of labor is wasted in non-productive activities. In our low net profit business (3% average), contractors who are 10% more productive double their net profit before tax. Of course the reverse is true meaning they break even.

Contrastingly, if project owners and their design teams want projects done with little wear and tear on them (production), while at the same time contractors want productivity, conflict ensues. Long term, the industry cannot afford excessive focus on production. Unproductive contractors squeeze margins and take gambles in small ways. This is recipe for a chaotic project, unhappy owner, and cynical public. As you know, contractors are tied to the economic reality that if productivity is not accomplished, then their firm may cease to exist.

### **Good news or bad news?**

The pessimist might see these trends in the construction industry as a sign of worse things to come. On the contrary, we see it as good news for contractors. Any firm that seeks to work smarter will be rewarded by the market. In fact, if you are producing at the same rate you were in 1997, you now have a greater competitive edge. Figure 1 shows this. In 1997, employees produced more than \$130,000 of put-in-place construction. In 2011, productivity per person was less than \$130,000.

For the industry, this troubling data could be the start of a productive discourse about the construction process and people. Are the culture, conditions, technology, and processes making people more effective? What are the counter balancing developments that have decreased productivity more? What are the areas we can control as an industry? What are the ones we cannot? The answers should guide a conversation about improving the industry.

It goes without saying that highly productive firms have the greatest potential for profitability. Therefore, for the construction organization, these data signal that the time is now to start strategically aligning your firm to be more productive. Doing this with great effort and care insures its future. We suggest that this should be our highest strategic priority for 2012.

As a starting point for industry improvement, defined, iterative planning with an increased amount of time in the post-bid/pre-mobilization phase would be a good place to start. Owner and designer engagement in the process is a must. If a schedule of values has a pay item for a front end planning process, so much the better.

This is a rational incentive to spend time on a high payoff activity. The owner might demand deliverables such as a perfected BIM model, CPM schedule, project executive letter of instruction, and Rummler-Brache planning diagram.

The Total Quality Management (TQM) community recommends standardization to improve processes. This is well accepted in all industries. However, we assert what the industry really needs are standardized “good operating practices”. That is, specific methods which are correlated to improved construction performance.

### Conclusion

We have every reason to make the construction industry a respected and vibrant one. It deserves that since it is ours; it is a reflection of us.

Since the greatest cost and highest risk of any construction project are its installation processes, not the design or the real estate, common sense tells us that the primary focus on the part of owners, designers, and contractors alike should be on efficient construction of the building or infrastructure. This will result in better products, and greater profit, and improved satisfaction among all parties to the contract. Improved satisfaction between construction firms and construction buyers will produce a better industry. Partners who are satisfied with outcomes will repeat the transaction. Our assertion is that a productivity initiative is a better use of the industry’s time than the finger pointing that sometimes occurs. Recrimination improves nothing.

### References:

- Arditi, D., and Ongkasuwan, D., (2009) “Duties and Responsibilities of Construction Managers: Perceptions of Parties Involved in Construction,” *Journal of Construction Engineering and Management*, 135(12), 1370–1374.
- Elbarkouky, M.G., and Al Fayek, A.R., (2011) “Fuzzy Preference Relations Consensus Approach to Reduce Conflicts on Shared Responsibilities in the Owner Managing Contractor Delivery System,” *Journal of Construction Engineering and Management*, 137(8), 609–618.
- Howell, G. A., Ballard, G., & Tommelein, I., (2011). Construction Engineering-Reinvigorating the Discipline. *Journal Of Construction Engineering & Management*, 137(10), 740-744.
- Owers, R., Ariaratnam, S. T., and Armstrong, D., (2007) “Lawyerization of the Engineering and Construction Industry,” *Journal of Professional Issues in Engineering Education & Practice*, 133(2), pp. 134–142.
- Pocock, J. B., Kuennen, S. T., Gambatese, J., and Rauschkolb, J., (2006) “Constructability State of Practice Report,” *Journal of Construction Engineering & Management*, 132(4), 373–383.

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