



Prefabrication Increases Productivity

Prefabrication is really a misnomer for what is happening in the industry. It's not prefabrication that is happening, but rather separation of production from installation. Most find there's no longer a choice to participate in productivity improving activities to improve time, cost and quality of the construction project delivery.

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The construction industry still looks at productivity as an individual measurement and uses accounting or financial output as bases of productivity scale. The actual throughput, which is only measured as an outcome, is lost in the current financial measurements. System productivity, which means how much of the resources we transferred to performance obligation, has been absent from the construction industry until recently.

When discussing prefabrication, there are three common statements which can be heard from those contractors with a traditional mindset:

- + We can only prefab for the standard "cookie cutter" items, and the maximum 3 to 5 percent of the project can be prefabricated
- + Prefab is only for the commercial and residential projects and will not work for industrial
- + Prefab takes our work away and it's easier to just do it onsite

The reality is much different than that. Companies which have adopted the prefabrication philosophy have had to change their culture from the traditional model of relying on the skilled trades to do all the work, to an industrialized



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construction model. In this new model, the question is no longer, "What can we prefab?", but rather: "What is it that we can't Prefab?"

It's not just about fabricating ductwork or using pre-built trusses anymore. Those are still valuable components and will continue to be used, however, the opportunity to do upwards of 50 to 70 percent prefab on any type of project comes by first identifying the work through a work breakdown structure, then focusing on reducing the risk on the project.

The Advantage of Prefabrication

The main reason to prefab is to reduce risk, which improves productivity. Construction is a very risky business because of the unknowns and uncertainties which exist daily on every jobsite. Often, the majority of work scheduled for any given day does not get completed as scheduled. Here are the top reasons for not completing scheduled work on any given day:

- + Absenteeism
- + Trade interference
- + Requested to move to another task by GC or customer



The Advantages of Prefabrication

- + Safer
- + More reliable
- + More predictable
- + Controlled environment
- + Manpower allocation/buffer
- + Reduce project duration
- + Get more work



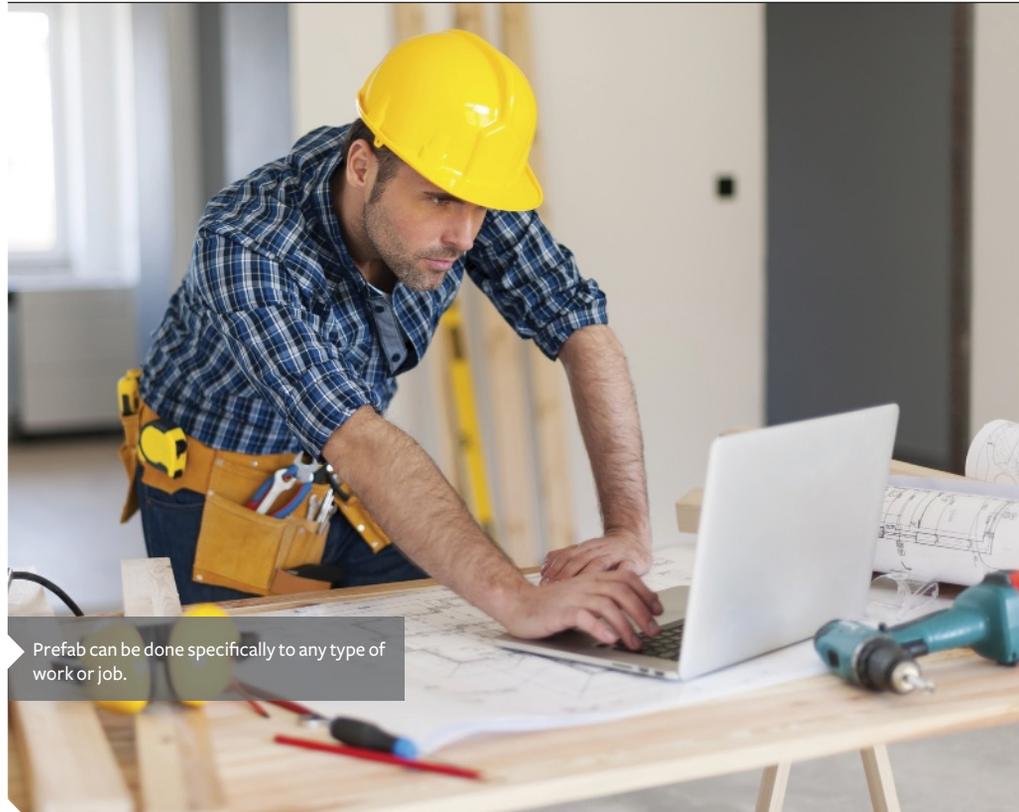
- + Material or tool issues
- + Not knowing the crew's capabilities
- + Jobsite conditions (e.g. lack of access, congested, etc.)

What does this have to do with prefab or productivity? Each one of the obstacles listed can be mitigated by removing as much of the “work” as possible. That is the secret behind the success of prefab. The work itself does not have to change; it just needs to occur in a controlled environment where you can visibly manage and train the workforce, avoid physical conflicts with other trades and maintain control over the material and tool utilization, and more.

Many contractors start prefabbing to “save hours” or “reduce the estimates to win more work.” But neither of these are direct results of prefabrication. Various studies reinforce the idea that the work performed on the construction jobsite, in best cases, utilize only half of the available resources for transferring performance obligations to the end user.

By moving the production work away from the installation site, the actual usage of the available resource increases by better than 40 percent due to a more controlled environment work space, which leads to higher system productivity. This environment will clearly compensate for any potential individual productivity losses due to usage of lower skilled labor.

Prefabrication can be applied on any type of work, including industrial con-



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struction. The uniqueness of industrial work has to do with the level of quality and technical complexities which are sometimes more stringent than in other types of work.

However, this is all the more reason to plan the work and remove as much risk as possible by externalizing it from the risky conditions.

Prefabrication is here to stay. All construction projects can take advantage of the numerous benefits of prefab. Prefabrication can be applied by involving the project team in planning the project and identifying ultimately, “What is it that we cannot prefab?”

Prefab can be done specific to any type of work. If your company wants to expand and reap additional benefits, a company-wide process of procurement is needed to ensure the most high quality and profitable results. Increased adoption of prefabrication is a critical new trend. ❁



Dr. Perry Daneshgari created MCA Inc. (<http://www.mca.net>) in 1990 with services focused on implementing process and product development,

waste reduction and productivity improvement of labor, project management, estimation, accounting and customer care. His expertise has benefited the construction industry, including electrical, mechanical and general contractors. Contact him at perry@mca.net.



Dr. Heather Moore is vice president of operations for MCA Inc. and has taught several classes for NECA, MCAA and MCAA of Canada; contributed

to several research projects for the Electrical Contracting Foundation, MCAA, the New Horizons Foundation and the National Association of Wholesaler-Distributors. Contact her at hmoore@mca.net.