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Let’s examine the advantages of prefabricated construction - by Otto Kinzel

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Prefabricated construction has been around for several decades now, yet there seems to be a lot of confusion over what benefits and advantages prefabricated construction offers. It is my personal experience it comes down to a preformed perception of “what” prefab entails and where the specific opportunities are on a given project. Prefabricated construction can often lead to significantly shorter project schedules, greater safety for the workers involved, better jobsite coordination and a greater control over the quality of the materials being prefabricated. Let’s examine:

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Advantages to Project Schedule

One of the biggest competitive advantages a contractor can achieve on a construction project is the ability to meet and exceed the project’s schedule. Weather delays, material shortages, and production delays are just some of the issues that can lead a project to fall behind schedule. Also, projects with multiple phases can often be on a very tight deadline for completion. Prefabrication offers the contractor significant advantages in all of these areas by being able to manufacture the applicable scope of a given project in a climate controlled, off-site venue that allows for a completed assembly (E.G. structural components, finish assemblies, mechanical assemblies, etc.) to be delivered intact to the site.

This also helps to eliminate the need to coordinate several trades who would typically work on the same portion of a job at once.

Another advantage is having the ability to keep other trades working (for example, foundations being poured while exterior EIFS wall panels are being fabricated, or while a roof system is shop fabricated).

This greatly improves productivity and in the overall schedule can save weeks, sometimes even months (depending on the size of the project) on the schedule.

Safety

OSHA refers to the controlling of a safety hazard at its source as engineering control. All job site

environments have some inherent danger, it's the nature of our profession. Prefabrication can (and should) be viewed as a way of controlling potential jobsite hazards by moving the scope of this work to an offsite location. For example: of the "Fatal Four" cause of jobsite fatalities that OSHA lists on their site, falls account for almost 39% of total deaths in construction. (https://www.osha.gov/oshstats/commonstats.html)

Our experience with prefabricating walls, roof systems and other materials is that we can limit the amount of exposure a worker has when it comes to height. This is almost always substantially less than what the worker would experience building it on site, as we have them on the ground and at most only a couple feet off the ground when absolutely necessary. On an active jobsite this traditional requires a worker to be several feet (and sometimes stories) up in the air, thus greatly increasing the chances of a fall.

It's worth repeating that being able to build in a controlled, offsite environment with a qualified, lean construction crew is not only time saving but also significantly safer. It's much easier to enforce specific protocols and procedures than on an active jobsite that is using "stick frame" construction. More trades equals more works, typically with scaffolding and other materials scattered about. This added obstruction of the available space typically increases the chance of injury for one of the workers on these sites.

Quality Control

Taking into consideration the points mentioned above as well as today's highly complex wall assemblies, which could incorporate everything from light-gauge headers to HSS Tube Steel and multiple layers of blocking to weather barrier, continuous insulation and finished, a heightened sense of control over the manufacturing quality is very important. At Atlantic Prefab we never see a "stock" wall panel that can be built from generic specifications; rather, every wall panel project is vastly different from the previous job we've been contracted to build. Again, having the full use of a climate controlled, purpose built area to manufacture said materials is critically important.

For example, at Atlantic Prefab we own our own facility that is in excess of 130,000 s/f. Our team does not have to worry about harsh weather or being exposed to the elements. We are able to closely monitor every step of the process when we are tasked with prefabricating a portion of the building. This includes the design, manufacturing and delivery.

Because of this, many prefabricated manufactures are able to also minimize the amount of waste generated by the materials being used. A recent case study published on the Medical Construction &

Design's website outlines the sustainability being used in modern construction and specifically the advantages of prefab construction in this area. https://mcdmag.com/2015/10/recycle-reuse-todays-waste-diversion-efforts-in-healthcare-construction-save-green/#.WgCd2NCnGUl

We see prefabricated construction options increasing within our industry over the next several years.

FMI reports in a recent survey that the amount of project work using prefab has almost tripled from 2010 (13%) to 2016 (35%), and there is no indication that the trend will slow down or reverse. In addition, according to the FMI survey results “contractors using prefab on more than 50% of their projects are more effective compared to those who do less prefab.” (FMI survey- https://www.fminet.com/wpcontent/uploads/2017/02/PrefabricationSurvey_2017.pdf)

As more and more building professionals become familiar with the benefits of prefab we feel the availability for this approach on commercial and residential projects will be more sought after. The clear benefits of very high quality work combined with quick, cost-effective erection and environmentally friendly construction practices will demand that more construction companies give the option of prefabrication very serious consideration for their next project.

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