

Speed Kills

Transformation of the Practice of Design

By Joseph Tortorella, P.E.

When the author entered the industry 41 years ago, there were no desktop computers. Everything was done by hand calculation, punch cards, and hand drafting. There were “job checkers,” a person in the architect’s office who continuously checked the project team’s drawings for coordination, completeness, and constructability. Projects followed a set schedule. There was no fax machine or email to send RFI’s through quickly. No drop boxes or project information exchange sites. No Federal Express. There was U.S. mail, messenger services, and mylars. Blueprint machines were often from a service provided by others and, when they were in-house, the smell of ammonia (developing solution) permeated the office.

Soon, the PC arrived. Eventually, there were programs to simplify analysis work. The volumes of hand calculations were reduced to data entry and output. Suddenly, a structure could be designed more efficiently (but not necessarily better). Bill Gates, the great American entrepreneur, said it best: “The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.” Current inefficiencies in dealing with technological advances moving rapidly ahead have resulted in overall inefficiencies far beyond what existed 41 years ago.

With this newfound speed enabler, owners discovered a need for “fast-tracking” of projects – completing the foundation design and/or superstructure design long before the architects, mechanical engineer, and all the other trades are close to completing their designs. Before finishes (which impact loading) are even being thought about, engineers are issuing final foundation drawings. The owner said, “we understand the ramifications” (high level of risk of cost increase and change orders as well as errors), but is it worth the risk? This also meant bringing the general contractor on board earlier. What started as a brilliant idea for saving time and money suddenly became a pressure-packed method of design. Job checkers became a thing of the past. The time taken to properly design and coordinate projects became

greatly compressed. “Construction managers” (CM’s) and “Owners Reps” were created. Now, schedules were compressed as a result of technology, and a much larger design and construction team due to layers were added to manage the process.

With the arrivals of CAD and then BIM, the CM’s and owner’s reps said: “all of these tools are now available so schedules (and fees)

It is time for a change. The author is not suggesting that we revert to the days of hand calculations and hand drafting, or even the days of the “master builder.” The players should slow down, rethink fast track scheduling, and reinvent the process. Speak up to the entire team about the downfalls of aggressive schedules. Why is there fear in asking or dictating to the owner that more time is

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have to be tighter.” While it seems logical, thinking back, it was a recipe that changed the course of engineering forever and, the author believes, set us back in our management of the process. Speed took precedence over accuracy. Elegance took a back seat to economy. Homelife took a back seat to work. The result was that the engineer became a tool for the Owners Reps and CM’s to use to their advantage to speed the process. The camaraderie that had long been a staple of the industry was losing steam.

Rather than thanking the entire team, the owner was looking for whom to blame for the delays, costs spirals, and errors and omissions. It was now “every man for himself” in an endless battle of costs and delay claims, and who was to blame. This was not the “master builder” at work with the entire team gathering around to learn the process; instead, it was a complete loss of control over the process by the design team. This, in turn, created friction and stress along with reduced fees and what the author believes is the “commoditizing” of services. What was an invigorating process suddenly turned into liability control, especially in the U.S. where the legal system encourages frivolous lawsuits. Project meetings were no longer about finding success; instead, they were about finding fault for failures. Does the speed at which we work, fast-tracking and cutting corners, REALLY save money? Too often, it has been proven that it does not.

needed? The time has come to do things right again and take control of our lives. Could you lose the next project? Perhaps. Is it worth what is done to our staff daily to ignore this and keep doing things “business as usual?” The author thinks not.

Specifically, revise the process by 1) eliminating, or at least rethinking, fast-tracking of projects. Instead, institute a new phase before the schematic called the “partnering phase” – with teaming sessions for all members of the team to set the tone for positive communication. 2) Creating an environment of teamwork with the construction team: meet them directly, learn something about them, and everyone will be less apt to get into shouting matches or throw each other under the bus. 3) At the university level, educating students as to the design *process*. Frequently, students understand the design concepts but cannot translate that into a series of submissions that meet a schedule. Change that by teaching the concept of “construction administration.” 4) Attempting to make a societal shift. Return some level of decorum to our working lives. Do you really have to be available 24/7 and spend meetings looking at your smartphone?

In short, the author suggests we take a moment to breathe, and listen to each other and to our hearts and minds. ■



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