



# The Silver Lining of Construction Productivity and COVID-19

By Gregg Schoppman

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## *An examination of the new normal COVID-19 productivity factor.*

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In early 2020 most business leaders probably didn't think a pandemic would shake the foundations of the world economy. In fact, the continued threat of diminished skilled labor and the related, detrimental impact to productivity were the common industry challenges that most construction executives faced at the time.

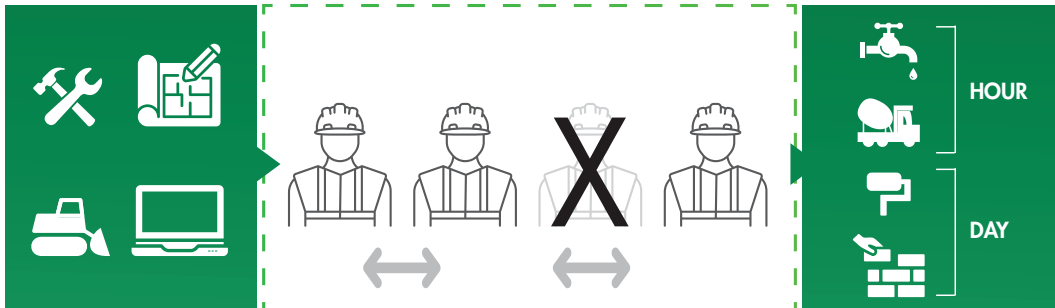
Today businesses have new sets of rules, guidelines and tactics to implement in order to succeed in the operating environment thrust upon everyone as a result of COVID-19. While the pandemic's earliest impacts on engineering and construction (E&C) remained unknown, many construction leaders shifted their focus to known variables such as social distancing, technology and clients' demands.

Looking ahead, business leaders will undoubtedly find new ways to thrive, but they'll also make errors as they react to

constantly changing dynamics. One area to watch closely is job site productivity, which is unlikely to remain static. However, there are probably several misconceptions and, more importantly, some of the pandemic's consequences may even benefit contractors in the long run.

For instance, there was a collective industry groan at the thought of testing every employee and cleaning every tool prior to commencing of work every day. However, there was also a moment of reflection where leading managers also recognized that for every productivity detractor, there was the potential of increased efficiency. All of the elements in Exhibit 1 are considerations that affect daily productivity and, in many cases, the upside is something that cannot be discounted.

## Exhibit 1. Productivity Drivers and Inhibitors in the Wake of COVID-19



<b>CREW SIZE</b>	<b>SPACING Part 1</b>	<b>SPACING Part 2</b>	<b>CLEANING TOOLS IMPACT</b>
<p>With social distancing in effect, crew sizes will be limited (i.e., five-person crew to a four-person crew).</p>	<p>Crew stacking will be a limiting factor, reducing area over population.</p>	<p>While adjacent trades may be limited, will output be negatively affected?</p>	<p>What will be the loss of productivity due to cleaning equipment and tools at the beginning and end of work shifts?</p>

<b>TECH LEVERAGE Part 1</b>	<b>TECH LEVERAGE Part 2</b>	<b>TECH LEVERAGE Part 3</b>	<b>CLEANING MATERIALS IMPACT</b>
<p>With a movement toward paperless, firms will see gains in operational productivity.</p>	<p>With social distancing rules, communication will have to be targeted and direct, limiting time away from jobs (i.e., wasted meetings).</p>	<p>What new innovative tools and equipment will aid production?</p>	<p>What will the loss of productivity be as it relates to cleaning materials that come on-site?</p>



## The Upside of New Crew Sizing and Spacing

With social distancing rules in effect, there may be a need to reduce crew size.

However, in many businesses, crew sizes have ballooned with no explanation or challenge to those increases. The question becomes: Can we do the same (or more) with less?

There are many studies that show the optimum spacing for personal productivity. Oil companies have explored these spatial constraints for years to determine effective spacing requirements in areas where safety and productivity must be maximized (e.g., on offshore rigs). Similarly, many construction managers assume that output increases when you cram more employees on a job site. The problem is that there is a law of diminishing return when it comes to overloading resources on a job site; simply adding bodies within confined spaces will only impede productivity. The good news is that new rules may prohibit placing more people in an area. Trade contractors will rejoice at this, knowing they will not have to work on top of other trades simultaneously.

## The Flip Side of Spacing

In some cases, contractors need more employees on-site to get the work done (e.g., for installing a window, placing a lintel or tying rebar). New rules may require novel methods and means of getting this done. Additionally, as different trades occupy a space, general contractors

and owners may not allow crew stacking, even if they haven't reached the capacity allowed for a particular space. This may require longer durations for specific activities, and it should be reflected in project estimates and budgets accordingly.

Crew transportation should also be considered and evaluated in terms of cost impacts. For example, in many markets carpooling is common and helps employees save money. In a COVID-19 world, some organizations are limiting group transportation, thus increasing costs for employees or the project cost profile in the form of additional fuel expenses. Even if the cost is minimal, this can impact the overall project.

## Cleaning Time: The Pros and Cons

Personal hygiene is not limited to hand-washing. It takes time to clean tools and work areas, both at the beginning and end of work shifts. Be sure to allocate time for preventive maintenance, as the new rules may dictate a less than optimal use of a 40-hour workweek.

The materials that arrive on job sites may also need to be cleaned prior to use. Obviously, a greenfield project may have a final cleaning phase that will provide a certain level of closure for customers. However, an electrical contractor working on a renovation of an active medical clinic may need extra time to clean switchgears and light fixtures. Be sure to factor this into the budget development process.



Additionally, contractors may have to do a more thorough final cleaning. In the past this could have meant simply vacuuming, floor waxing and restroom cleanings.

Today, owners' expectations may include a higher level of "cleaning commitment." At first glance, many contractors would concede that this is a change order as it deviates from the contract documents. Where this is undoubtedly a change in scope, it would be foolish to think that there would be no impact to general conditions (i.e., original final cleaning of one to two days, new final cleaning of five to seven days). In summary, these changes require careful planning and forethought and open communication with owners.

Overall, workspace hygiene and cleanliness will change and could have ramifications for contractor costs, but there's also another perspective that should be considered. Outside of extraordinary exceptions or requirements, trade contractors and general contractors alike have largely struggled with simply keeping sites clean. Spurred by the pandemic, this new focus on cleanliness and hygiene may actually improve productivity and job site safety.

## Leveraging Technology

Optimizing digital technology for timecards, job reports, punch lists, submittals, schedules, purchase orders, quality assurance or quality control, and other documents is probably just what the construction industry needed. By going paperless, crews can focus on the work and gain efficiencies that were previously out of reach. For example, crews can use

digital tools to report both time and quantities, obtain real-time productivity information and quickly adapt to changing work environments.

Use of videoconferencing tools such as Zoom, Webex, Microsoft Teams, GoToMeeting and FaceTime has also accelerated due to the pandemic. In fact, communicating via virtual tools was often a last-ditch effort for some in the pre-COVID era. Now, in the absence of true face-to-face interactions, these tools have become essential to maintaining schedules and good communication. They've become as ubiquitous as a hammer drill or backhoe on job sites, enabling teams to close the distances and utilize time more effectively.

## The Formulaic Approach

Most construction organizations use elaborate estimating programs and baseline crew rates that provide a multiplier for all work quantities. For instance, if a contractor estimates that it will need 100 linear feet of water piping, there is some labor multiplier that represents the appropriate crew blend (i.e., one crew leader, one equipment operator, three laborers).

However, for many organizations, the crew cost blend is one dynamic that may not receive the required level of scrutiny. For example, simply bolstering it with a cost of living increase doesn't work anymore. In fact, best-in-class firms are taking a more formulaic approach to dissecting the cost drivers. Exhibit 2 illustrates a theoretical formula that represents the new multiplier:

## Exhibit 2.

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$$\text{NEW CREW RATE} = (\text{Old Crew Rate} - \Theta) * \text{COVID FACTOR}$$

$$\text{COVID FACTOR} = (\text{B} + \text{X} + \Delta + \text{E} + \phi + \Gamma + \text{H})$$

$\Theta$  – Crew Size Decrease

$\text{B}$  – Crew Size Loss of Production Decrease

$\text{X}$  – Tool and Hygiene Cleaning Cost Production Decrease

$\Delta$  – Clean Materials Cost Impact

$\text{E}$  – “Productive Site Through Cleanliness” Enhancement

$\phi$  – “Less Distractions” Enhancement

$\Gamma$  – “We can’t carpool” Transportation Cost Increase

$\text{H}$  – Spacing Enhancement

Many may initially question how to come up with the values for these factors. First, developing these productivity variables is an equal balance of art and science. Going through the process of identifying and quantifying these numbers is a win for any firm.

Successful businesses delve into their cost structure and avoid broad generalizations on productivity. With so much emphasis on increased time associated with cleaning and hygiene right now, contractors might mistakenly assume that costs should increase *across the organization*. This, in turn, could adversely affect the firm’s competitiveness. To avoid this problem, companies should focus their planning and analysis efforts across each project.

There are changes happening that all businesses should recognize as becoming new standard operating procedures. These changes must permeate across all aspects of the business, including (but not limited to) estimating, budgeting, planning, cost monitoring, productivity reporting and financial benchmarking. As challenging as the pandemic has been, COVID-19 is simply a manifestation of an ever-present list of business challenges that require leaders to pivot and adapt. If it wasn’t COVID-19, there would be some other obstacle to overcome. Overall, it is essential that construction business leaders adapt, react and pivot quickly to succeed in today’s changing operating environment.

# About the Author

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