



The COVID-19 Pandemic and Its Impact on the Construction

Industry:

Staying Essential

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Abstract

This paper addresses the effects of the COVID-19 pandemic on the construction industry. Input from industry representatives, personal experience as well as statistical data will show that while the pandemic had many negatives such as labor and supply shortages, there were also some positives that could be embraced as best practices for the industry. Industry organizations, such as the AGC, need to continue to fight for changes in government policies contributing to unnecessary shortages; the organization can also lead the way into the future with guidance that will ensure the industry continues staying essential.

COVID-19 has affected the construction industry in both negative and positive ways. During the initial “stay at home” order in March 2020, the industry was deemed “essential” in all but four states (Michigan, New York, Pennsylvania and Washington). This was probably the single greatest positive for the industry during this time. However, as many adjustments had to be made, it was not business as usual. I asked seven representatives in the construction field (Appendix A) about the impact of COVID-19 on their business. Many of my first-hand experiences as an intern for two summers with Baker Construction in Washington D.C. were also experienced by these veteran construction professionals. The industry, which understands the importance of safety and the use of protective safety gear, was able to respond to the pandemic and adapt. Some of the necessary adaptations created positive situations that could be evaluated for best practices for the industry. However, government policies created labor shortages which in turn created supply chain issues. Lessons learned over the past twenty months can make the industry stronger if adaptive changes are embraced and a collaborative response addresses COVID-19-related issues that continue to impact the industry.

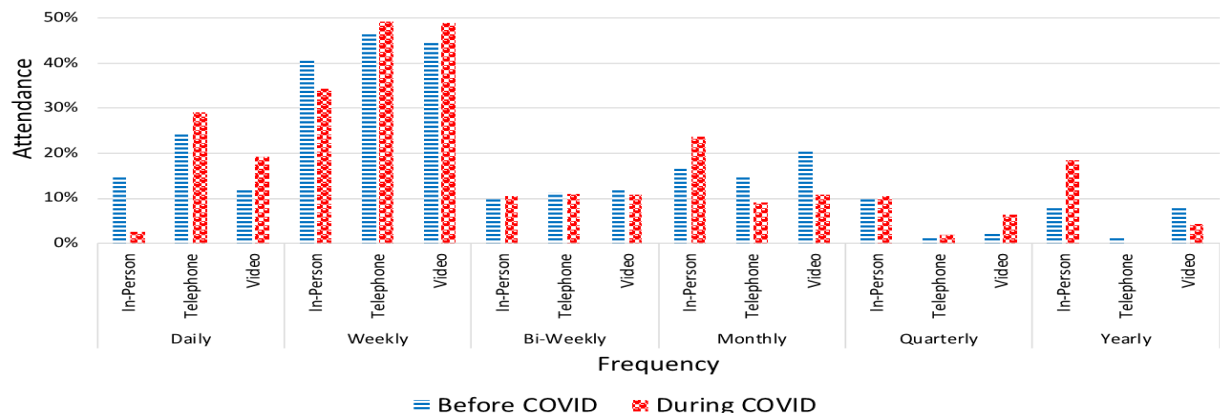
As the industry responded to the Centers for Disease Control (CDC) guidelines to maintain safety for its employees, some of these adaptations created positive situations that could be evaluated for best practices for the future:

- Group size limitations led to improved job site communication and workflow
- The need to limit shared equipment use led to increased productivity
- The need for social distancing addressed job site congestion, improving safety
- The response to management’s need to “stay at home” led to re-imagining the office without impacting, and actually improving, team collaboration

Job site routines were quickly impacted in the first few months of the pandemic as management needed to follow the CDC guidelines for masking, social distancing and limiting group sizes. One of the first things to change on Baker Construction's job sites was the morning meetings regarding the tasks for the day. Traditionally, all job site crews gathered outside the trailer for a morning meeting that was led by the superintendent. Upon the meeting's conclusion, the crews would head to a central area for equipment before continuing to their area of responsibility. When I arrived at my first work site in May of 2020, social distancing restricted large gatherings. Instead, the job site superintendent had all crew foremen come in early for a smaller meeting. The foremen then ran smaller crew meetings at start time. Foremen became the link between the superintendent's management decisions and their crews. While the realm of responsibilities may vary from company-to-company or even site-to-site, the need for smaller group gatherings has led to sharing information differently and empowering more people to ensure the pertinent information reaches the right people. When talking to a carpenter foreman, he told me he felt the new system of crew-based meetings was more efficient. Rather than spending time in an all-site meeting each morning, he was able to communicate pertinent information directly with his crew in a more timely manner. He also felt that they were mobilizing faster. On a vertical site there is a mad dash up the few buck hoists and stairwells for crews to get to their work areas after the large group trailer meeting. On a large flat site his crews had to walk to a corner of the site for a meeting then walk back across the site to their gang box. Conducting focused crew meetings in more appropriate spaces created a more efficient and effective beginning of the day.

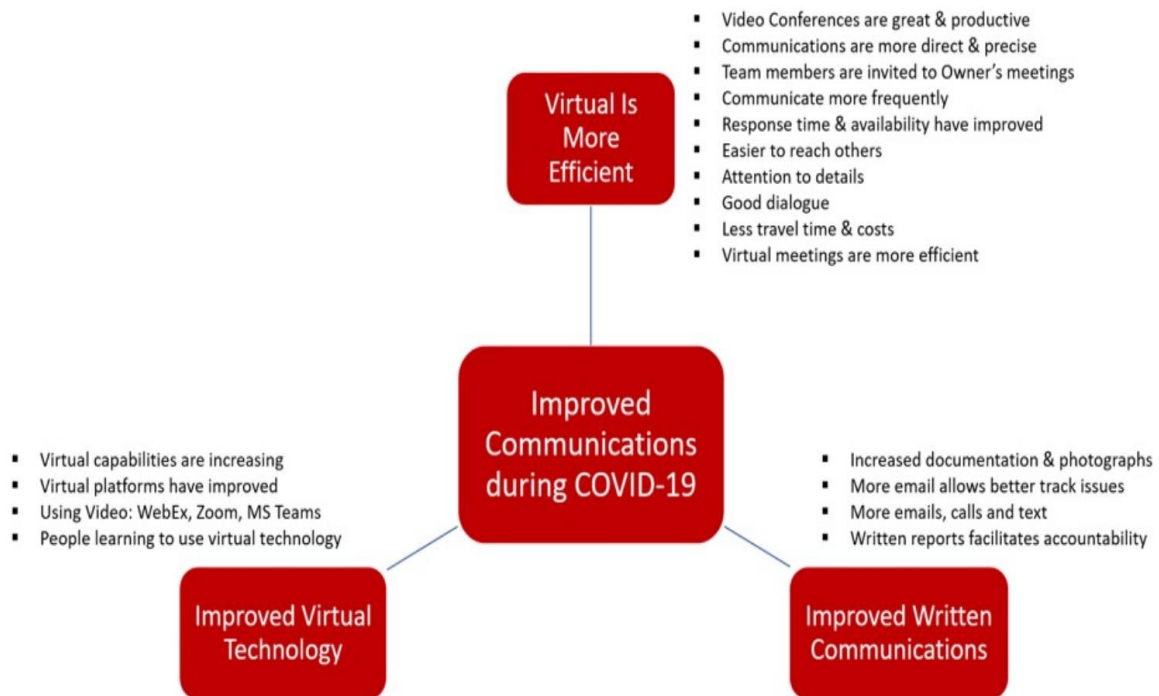
Another positive safety protocol instituted during COVID is the need to outfit craftworkers with their own “personal” equipment for the day so that there was no shared use of equipment. Outfitting crews to be self-sufficient increased productivity. For example, crews didn’t spend time searching a central location for cordless tool batteries, power tools or consumables. Foremen no longer had to spend time tracking down tools that were left around on the site. Instead, crews were issued the tools they needed for the task they were assigned to and were expected to keep that tool with them during the duration of the day. Equipment operators were also assigned specific equipment for a day. This led to employees maintaining their equipment, keeping it clean, and working efficiently. There was also better tracking of the operability of tools since the tools were turned in daily for disinfecting which allowed for daily inspection for damages.

The office environment was also impacted as a result of COVID-19. When office employees were sent home, companies quickly adjusted work practices in order to continue work. Technology allowed people to stay connected. According to a study by Auburn University, attendance for telephone or video meetings improved during COVID. One representative I spoke with discussed how he was able to attend more meetings because he could click off one meeting to join another.



The Auburn study also found that project teams saw improved verbal communications, improved virtual technology capabilities, and more efficient virtual collaborations.

Technology allowed teams to improve communications by quickly sharing files, budgets, drawings or slide decks during meetings. Additionally, room capacity and location no longer dictated who was involved. Companies can re-imagine their office needs, and overhead costs, in the future if employees are able to work from home.



The industry also had to decrease job site congestion to meet CDC recommendations for social distancing. Management had to think in terms of space when scheduling labor and tasks. At Baker Construction, we had to space tasks out so that there was only one crew in a space at a time and to provide alternative access to lay down areas to reduce crews passing each other. According to an Auburn University study, across six trades and 174 responses, 43.67% reported that layout is taking longer due to COVID-19.

However, by spacing out people and reducing the contact between crews, this has the added benefit of giving crews larger areas to lay out and plan their work; essentially less congestion. Congestion is a leading factor in “struck by” and “caught between” incidents, which make up 11.1% and 5.5% of fatal construction accidents. Thus, reduced congestion should improve job site safety.

While the construction industry was adapting to government guidelines, certain policies impacted the industry negatively as they led to a labor shortage:

- Government assistance has led to labor remaining at home
- Quarantining and contact tracing policies have created labor gaps
- Vaccine mandates are further contributing to labor shortage

The labor shortage then led to another negative still impacting the industry today:

- Disruptions in the supply chain has created shortage or delays of materials

Despite the industry being deemed “essential,” the industry did face some job stoppage as contractors’ clients were responding to the unknown of the pandemic. Labor was furloughed or laid off. When projects reopened, a labor shortage was soon encountered. At the end of March 2020, the *Coronavirus Aid, Relief and Economic Security (CARES) Act* increased benefit amounts and extended the length of unemployment. A survey done by the Associated General Contractors of America (AGC) asked employers about worker availability. Forty-one percent of the respondents in the Midwest stated that recalled laid-off workers were refusing to work, citing preference for unemployment benefits. During the summer of 2021, one of my co-workers, “Eddie”, told me that he had just returned to work after taking a year off. I asked him why he had

been gone and he told me it was because he was receiving unemployment benefits that were within \$200 of his typical 40 hour /week wage. He had only returned because he understood that the benefits would soon be ending so he wanted to get his old job back. Additionally, I recently learned from others at Baker Construction that wages have been increased; including increasing the intern wage rate by as much as \$10 an hour in order to attract interns for their program this summer.

Another issue creating labor shortages is forced absences due to COVID illness and exposure policies that many companies enacted to comply with the CDC's guidelines. Extended time off, such as a minimum of 10 days if one contracts COVID and 14 if exposed, leaves gaps in crew sizes and skill levels. One superintendent I spoke with was frustrated by different protocols, depending on which U.S. state they were working in as well as the ever-changing guidelines put forth by the CDC. Four of the six companies that responded to my questions did not have a formal policy outside of site specific and/or owner-dictated restrictions, often based on one size fits all state recommendations.

A more recent issue contributing to labor issues is vaccine requirements. During an interview I had with a contractor in the healthcare field, I learned that many of their healthcare clients are requiring that all contractor employees on their sites have both a COVID-19 vaccine and a flu shot due to OSHA mandates for the healthcare industry. The mandate for federal government employees will also impact companies that work in the government sector. Mandates will further limit the labor field as, according to the CDC website, 40% of the nation's population has not been vaccinated. Without taking natural immunity into consideration, the unvaccinated will not be able to work in these industry sectors. An informal poll done by *Engineering News Record* in October 2021,

showed that respondents anticipated their companies would lose workers if a vaccine was mandated across the industry.

The labor shortage has created longer lead times and unavailability of materials. The AGC member survey conducted in June of 2021 found that 32% of the 104 respondents stated that they had project delays or disruptions due to shortage of materials, equipment or parts. During my internship this past summer, I was on a concrete crew that had to start our days earlier and finish later because the cycle time for concrete deliveries was greater than usual due to driver shortages. One of the industry veterans I spoke with said his current job in the heavy industrial field is currently running over time and over budget due to his material costs going up by 45% and many deliveries were “just in time.” An article on [constructiondive.com](https://www.constructiondive.com) in October of 2021 quotes Ken Simoson, chief economist at AGC, regarding material shortages. Simoson stated that “steel, roofing and insulation materials are most difficult to find right now.” Simoson added that bar joists can now have lead time of 10 to 14 months.

While wage increases have become a temporary fix to the labor shortage, industry leaders, such as AGC, must continue lobbying against the policies creating the labor shortage. Additionally, AGC should lead the way in developing best practices for COVID mitigation as well as illness policies that take into consideration our industry’s unique environments. Collaboration between members, as well as input from health professionals, to create standard protocol and practices for all AGC member companies will help guide leadership, reduce learning curves for laborers who work within multiple member companies and provide employees with confidence to keep sites safe and operating. Additionally, AGC could recognize contractors who are successful through

these protocols and best practices. COVID Safety Awards similar to the Construction Safety Excellence Award (CESA) or the National AGC Safety Awards (NASA), could also be recognized.

Once the issues creating the labor shortage are addressed, the supply chain will naturally correct itself. But experts, such as AGC's Simoson fear it will be another year before this occurs. So the industry should continue to plan for longer lead times, find solutions with substitute materials and seek materials that are produced in the United States and not stuck at our nation's ports.

The COVID-19 pandemic impacted industries around the world. Within the United States, the construction industry being deemed "essential" allowed for the industry to forge forward. We adapted well and embraced changes. However, there are still major issues that need to continue to be addressed by industry leaders. AGC, wielding the collective voice of over 27,000 contractors, must continue to fight for changes in policies that are creating labor and material shortages. Creating construction-specific COVID protocols and guidance for the industry is essential in keeping the industry "essential" in the next pandemic.

This pandemic has forced our hand to adopt new approaches to staffing, material acquisition, and means and methods. Many of which are here to stay, whether that be to insulate the industry against future events or to reap the rewards in an industry that has always been slow to change and adopt new technology. Either way, these are changes we must make if we are going to stay essential.

Appendix A

Brad Benhart, Professor, Purdue University

Brett Shelton, Turnaround Event Lead Manager, BP, Whiting, Indiana

Carpenter Foreman, Baker Construction DC, LLC

Daniel Bush, Asst. Superintendent, Sterling Group

Don DiCola, Superintendent, Michuda Construction

Eddie, Concrete Finisher, Baker Construction DC, LLC

James Jenkins, Associate Professor, Purdue University

Mike Cowherd, General Superintendent, Gaylor Electric

Reggie Faircloth, General Superintendent, Gaylor Electric

Rusty Whetsel, General Superintendent, Gaylor Electric

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