

# **COVID-19 & the Construction Industry**

**By**

**Paxton Hemphill**

**CMGT 4300**

**East Carolina University**

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## **Abstract**

This report will discuss the issues within the construction industry related to COVID-19 and the effects it has caused. This report will also discuss how the industry is adapting to these issues and how the industry can benefit from this pandemic in the future. There will also be a portion that goes over personal experience and education, as well what organizations could do.

## Introduction

Since Covid has been an issue for over a year and a half, the United States has been one of the most affected countries. According to the Centers for Disease Control and Prevention, the United States death toll is currently in the range of 715,000. With this many deaths, not only was there a health crisis, but an economic crisis as well. With a fall in the economy, this resulted in the construction industry slowing down also. Many businesses struggled and are continuing to struggle, jobs had to be postponed, employees had to be laid off, fewer new clients existed, and an all-around fall in business related to construction occurred. But, it's more than just that. There are also issues within the field that have been around before Covid, Figure 1 shows some of these issues.

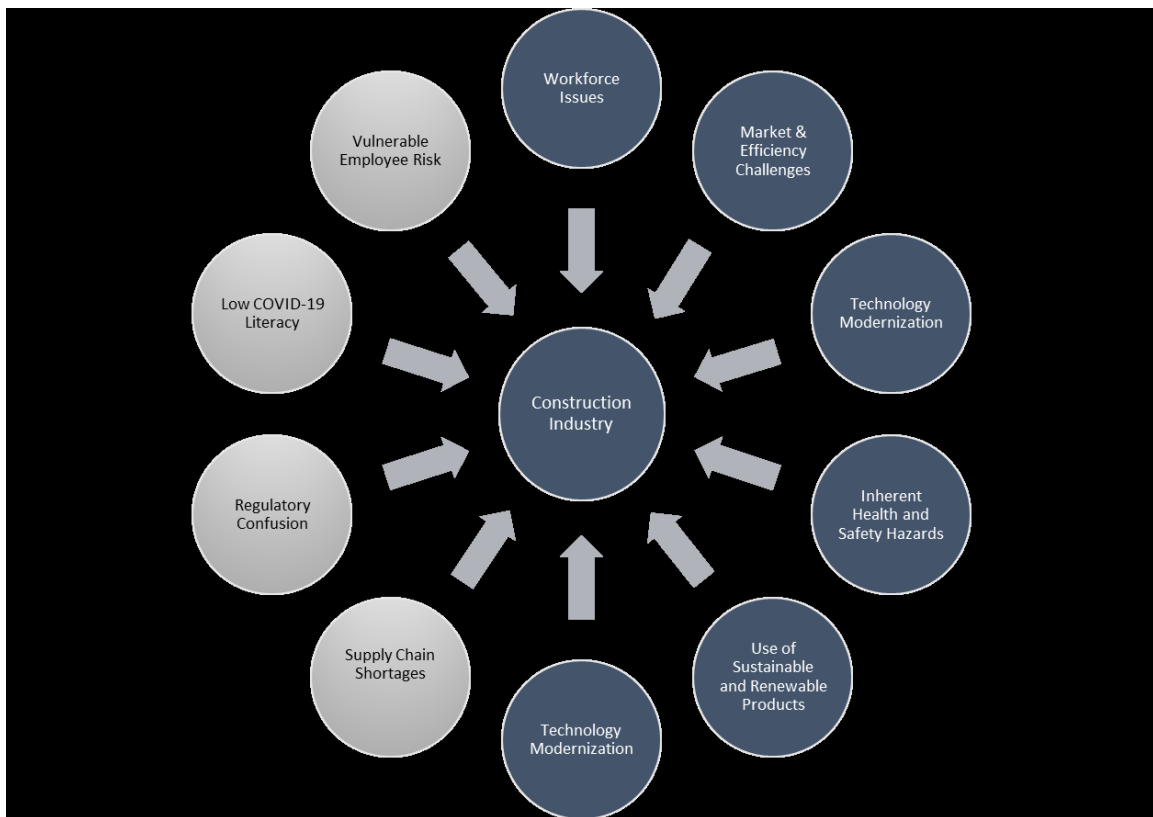


Figure 1 (Choi and Staley, *Industrial and Systems Engineering Review*)

The circles in blue indicate existing issues within the industry, and the grey circles indicate issues that have arisen from Covid. Some of the issues associated with Covid in the industry were also related to existing issues, such as health and safety hazards and vulnerable employee risks.

## **Workforce**

As many professionals in the industry know, the average age of a construction worker is rising, with a decline in the skilled labor force. The Center for Construction Research and Training published a report in 2020 that stated that the average age of U.S. workers increased from 37.3 to 42.4 from 1986 to 2019 (Brown et al., “Coronavirus and Health Disparities in Construction”). This might not seem like a big deal, and in reality the construction workforce used to be younger than other industries on average, but the Center for Construction Research and Training states that, over recent years, the construction industry has passed other industries in the average age of workers (Brown et al., “Coronavirus and Health Disparities in Construction”). Covid has had a negative impact on the workforce in regards to age and skilled labor, with an older average age in the workforce, the greater the chances are of illness. According to the Centers for Disease Control and Prevention, there is a higher risk for contracting the virus in the middle to older age groups, studies have shown that the older a person is the higher the risk of becoming ill or catching the virus. All of this put together shows that, with an older and riskier workforce, less construction is getting finished given that there are fewer employees and a declining skilled labor force.

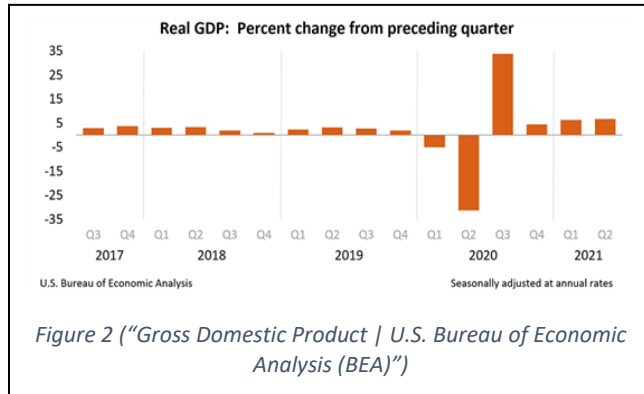
## Economy

The United States' real gross domestic product (GDP) dropped significantly when the pandemic hit. Figure 2 shows the publications by the U.S. Bureau of Economic Analysis on the GDP throughout the different quarters in 2020. The GDP slightly went down in the first quarter and then drastically went down in the second, with a rebound in the third. In a bulletin published by

the Center for Construction Research and Training, the authors write

“Overall *construction spending* dropped \$68.4 billion from January to May and increased by \$44.7

billion from May to September in 2020, remaining about \$23.7 billion below January levels” (Brown et al., “Impact of COVID-19 on Construction Businesses and Productions”).



## Material Shortages

From the start of COVID-19, most contractors were unable to obtain basic materials needed for construction sites. This created material shortages and directly caused the pricing to go up, which affects the total budget of the project. The ongoing increase in materials costs limits the overall profit a company can make. According to World Construction Today, “71% of contractors surveyed are facing at least one material shortage. Lumber was the most-cited material shortage (31%), followed by steel or electrical supplies other than copper wire (11%) and lighting supplies (10%)” (“Construction Material Shortages to Continue in 2021”). With the supply struggling to

keep up with the demand, pricing is continuing to increase. There does not seem to be a foreseeable end as ships are still stuck in the ports waiting to be unloaded and supply chains continue to get backed up. Another unexpected consequence spiked by Covid is the shortage of available transportation and drivers to deliver materials.

### **Changes in the industry**

As stated, Covid has brought some challenges to the industry, and there are a few ways that contractors and construction companies have dealt with this. In several studies done by Dodge Data & Analytics, “About three quarters of both civil and commercial contractors report that they have changed work procedures to increase social distancing”. Showing that some contractors are making an effort to allow for change in the way they normally do business to allow employees to be safer yet still get work done. Although, the article does not go into detail about exactly what measures were being taken for jobsite employees, the option for office employees to work remotely from home was a significant statistic. The remote work option for office employees of a commercial contractor came out to about 67% and then for civil contractors it came out to about 50%, per Dodge Data & Analytics. Many companies or contractors are not reporting on whether they have had to lay off employees or make changes to employees’ salaries; but of the few that have, there is a higher percentage among commercial contractors, around 20%, than civil contractors, around 10%, per Dodge Data & Analytics studies.

While it has always been in the best interest of all involved to document and report any events that may occur throughout the process of a project, the need has significantly increased since this pandemic has started. In an article written by Chivilo et al. from Holland & Knight, it is important to “identify the impacts/events that have

occurred, track timelines and durations of any impacts/events, thoroughly detail the course of the impact/event over the entire project, and specifically the casual connection as it relates to the ability to perform, detail any efforts undertaken to mitigate any impact/event”. The use of the term “impact/event” is important to notice, given that this is a very loose term that can incorporate many possibilities that are associated with the negative impacts on the industry. Chivilo et al. are trying to put emphasis, not necessarily on what impacts or events are occurring, but rather the process to thoroughly document them when they do occur. Adding this to contractors’ already heavy load during the construction process may seem as a negative addition to some, but, in reality, this could save a contractor if anything were to happen.

## **Education**

The Construction Management program at East Carolina University has given me the opportunity to learn different skills and approaches to deal with challenges within the construction industry. My construction economics and construction estimating courses prepare us for making financial decisions that can impact a budget or proposal. Taking into account the economic position within the United States that will positively or negatively affect the pricing of materials and manual labor is important. As for my construction management classes, they taught me how to broaden my understanding of how to use management skills and to collaborate as a team, working toward a common goal. My professors emphasized the importance of safety, ensuring we all knew the different restrictions and safety codes put in place, creating a safe environment. Lastly, the skills and experience I am gaining, not only from school, but the internships I am

required to take help teach me good analytical, communication, and decision-making skills that will help me be successful in the construction field.

## **Experience**

As for East Carolina University's requirements for Construction Management majors, there is a minimum of 500 hours of work experience required. Before college, I did not have a lot of experience in the construction industry; I would consider it minimal compared to some of my peers, only getting some experience with my grandfather when he would renovate some of his buildings that leased small businesses. While in college, I have had two internships, in the summers of 2020 and 2021, so a majority of my work experience has been during the pandemic and includes all of the associated efforts to combat the pandemic in the industry.

While interning with a residential contractor in the summer of 2020, I saw firsthand the impacts from Covid on a small residential contractor. The projects that were started before my employment had slowed to either a complete stop, or to only one or two subcontractors being on the jobsite at a time. Not necessarily due to my employer's request, but to the subcontractors' inability to fulfill their portion of the work, materials, clients' requests, illness, and other factors. All these factors combined made it a stressful period for my employer. Clients and jobs that were not under contract yet, but were in talks of happening, were getting canceled or postponed. While talking with my employer before the summer started and before I actually started working, the topic of wages came up in my interview. At first it was better than I expected, but before my start date my wages changed, due in part was to the inability of a small business to pay employees due to the lack of business.



## **Solutions**

The pandemic has caused enough issues to make it too complex to list a solution for the construction industry. Instead, there are a few processes or steps that should be taken that can improve industry in both the short-term and the long-term. One of the processes that can be implemented is an improvement of scheduling. This can lead to less confusion throughout the process, especially given that there are material shortages, and allowing enough time for delays when estimating a project's length. Another step that can be taken is the direct focus on one's health. If an employee, jobsite or office, is not feeling well, then there should be an increase in the amount of allowable sick time, even if the illness is not Covid. Although this may not be an ideal option in the long-term, as an employer does not want an employee calling in sick for a majority of the year, this can help in the short-term with regard to staying clear of Covid. Other measures that can be taken are "daily talks" with employees. This as I have seen firsthand, consists of going over company policies that have been changed to combat Covid, and includes self-examinations. Finally, an unpopular opinion that I have seen from personal experience, there can be a mandate for vaccination.

An organization such as the Associated General Contractors of America (AGC) can play a role in the safe return to normal business pre-Covid. The AGC can put emphasis on getting the vaccine, showing the positives to vaccination and how the pros can outweigh the cons. Also, the AGC can post positive updates on the industry; this may be a bigger deal than it seems. Positive encouragement goes a long way; no one wants to only hear negative information.

## **Conclusion**

In conclusion, the industry is trying its best to continue to do business as the impacts from Covid continue. There are various ways that businesses are combating Covid; all are helping each business in their own way, and as bad as it sounds, there is no specific way that helps all construction businesses. Each sector has been affected in different ways, some not as bad as others. The entire nation is unsure as to when we can return to normal life pre-pandemic; so in my opinion, each and every business should do its absolute best to combat Covid, from daily self-examinations to remote working, any way that can help an individual business survive.

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