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# NAC Executive Insights

## Trends for the Construction Industry: Innovation to be Accelerated

### Key Points

- The total number of people leaving their jobs each year is rising, the “Great Resignation” from the pandemic is adding to the number, and 10,000 baby boomers are retiring daily.
- The construction industry currently has 750,000 open positions, and its leadership will need to further innovate their hiring, development, and retention processes. Labor shortages are affecting project outcomes now.
- The hard trends for the construction industry include labor shortages, safety mitigation, off-site modularization, and a focus on sustainability, resource-efficiency, and environmental responsibility.
- Technology is a key to improvement in safety, efficiency, financial outcomes, and quality.
- A focus on employees and employee needs will be critical to attract new talent to the industry.

### Leadership Insight

This Insight is written from a perspective of the connection of current events in social activity stemming from the COVID-19 pandemic and the phenomena of large-scale retirements. How these two intersect is explored in order to further push the construction industry toward innovation. The higher cost of labor, the shortage of skilled trades, supply chain disruptions, and safety concerns make the search for new methods and tools urgently important.

### Introduction

The headlines regarding the “Great Resignation” are causing practically everyone to stagger: according to the U.S. Bureau of Labor Statistics, roughly 33 million Americans have quit their jobs since the spring of 2021.

The Great Resignation is a popular phrase that describes the fact that Americans are voluntarily quitting their jobs, and those quitting include older workers. Possible causes include wage stagnation with rising inflation, some economic freedom with Covid stimulus payments, long lasting job dissatisfaction, and safety concerns. Specific linkages can be made to workers who have stayed home because of childcare needs while schools have closed, those who reject the idea of face-to-face work during a pandemic, and

those wanting to retire early due to their finances being buoyed by surging stock and housing markets. Anthony Klotz, a professor at Texas A&M University, has noted that the future will see this continue as a large number of people will leave their jobs even after the COVID pandemic ends and life returns to "normal." The pandemic continues today and people continue to leave their jobs in increased numbers.

Daniel Burrus has been an accurate forecaster of future events based upon trending data for over 30 years. He states, "There has never been a shortage of trends. The real problem is figuring out which ones will happen... *hard trends* are those that will happen, and *soft trends* are those that might happen."

The Great Resignation is additive to the macro hard trend of the total number of employees quitting each year over the past decade. Additionally, according to a recent survey by the software company Jobvite of 1,500 American workers, 33 percent of surveyed employees quit their jobs within the first 90 days of employment. This is exacerbated by the fact that there is an urgent need to hire, and employers can become desperate. They then consider hiring someone while knowing the new employee is not a good fit for the organization. Work schedules, employee expectations, and company cultures may be misaligned and the limited pathway to future growth and development could be communicated vaguely or without transparency. The Jobvite survey results led to the following observation from the final report:

"Managers are now navigating the ripple effects from the Covid pandemic as employees re-evaluate their careers and leave their jobs in record numbers. Companies concurrently have a record number of open positions in the U.S.

What has been driving this recent shift? A recent review of more than nine million employee records at 4,000 companies by Ian Cook revealed two trends: Mid-career employees are leading the resignation and the highest rates are among food and hospitality, technology, and healthcare workers.

People may have had enough, and they want to break free from the grind. They have a sense of continuous emotional and physical exhaustion. People seem to be prioritizing their physical and mental health more than ever and leaving jobs that do not meet these needs. Also, they may be leaving behind a poor fit for them within the organization and maybe relationship problems with other employees and their supervisors. The culture of the organization that appears to have lost empathy for their employees and provides limited purposeful connections to the employees' work job and with other employees is most vulnerable. The lasting feeling of ineffectiveness and a never-ending process of going through the motions is very real for the employees."

Alternatively, there are ample job openings for people to find another job. According to Zippia, a career planning company, the average pay increase when moving to another job is about 15 percent. Benefits are rising and even a promotion is more likely than in decades past. A career change is now welcomed and with it a change in schedule and type of work.

American workers are among the hardest working in the world. The higher quit rates may be linked to an anticipated historical hard trend that as the economy stabilizes after the pandemic, people have opportunity and the desire to change positions.

### **How Does this Situation Reflect in the Construction Industry?**

The U.S. construction industry is comprised of almost 700,000 companies, employs 11 million people, and installs \$1.3 trillion of structures annually. It also involves risks for workers. Unfortunately, almost 1,000 construction workers lose their lives each year in job related accidents.

About 80 percent of constructions firms are having difficulty filling all of their hiring needs, which amount to nearly 750,000 job openings. Additionally, these companies are concerned that job site safety will be impacted by the skilled labor shortage.

People born between 1982 and the year 2000 make up 35 percent of the workforce. Many from this 22-40 year age group, however, are not aspiring to work in the construction industry. There are 1.8 million people between the ages of 55 and 65 years of age in the industry, and thousands of these older workers are retiring yearly.

#### ***An example of the results of this trend***

*In a recent outage at a four-unit coal fired plant in northern Arizona, the industry labor shortage became quite apparent. The owner of the unit planned for an outage that included a major turbine overhaul, partial boiler tube replacements and repairs, and many other smaller in scope activities.*

*The owner planned and performed most of the non-turbine and boiler work. This work had resources scheduled and was performed by the owner's permanent staff. The staff was Covid-19 compliant and well aware of the site and its layout.*

*The turbine crew came from a traditional contractor and the scope of work easily fell within its capabilities. The crew was new to the site and new to the particular Covid-19 rules implemented to keep everyone virus-free. The work went as planned, but when issues arose in closing the turbine and as other*

*issues arose from the generator, a typical revision of scope and schedule was revealed. What is interesting is that as the industry continues to retire coal-fired generating units and as the workforce ages, there are fewer employees who are knowledgeable in terms of equipment history and who are experienced in troubleshooting. Layer on travel difficulties and Covid-19 restrictions, and the result is that many skilled personnel are not making themselves available to work.*

*The boiler work was also concluded with difficulty. The crew members traveled from other locations and states to work in Arizona. One of the crews that performed welding throughout the job did not have the skill to avoid tube leak failures upon unit startup. A lingering process of discovery and correction ensued. The lack of skilled trades affected the quality of the job.*

*The original work by the owner's employees was completed as planned. The other two scopes had extended schedules.*

The construction industry traditionally has been slow to adopt innovation in its hiring processes, but this is changing. Companies are using training, adjusting hiring processes, offering overtime, bringing on interns, and employing more diverse candidates, including minorities, women, and veterans. The challenge is to use more agility in hiring and training workers. To further mitigate this situation, about a third of the companies are incentivizing their prospective hires. Solutions should include imaginative ways to bring better tools, technology, training, and development into the overall hiring process.

Almost half of the industry firms are raising prices due to concerns about the cost of skilled labor, and are turning projects away and taking more time to complete projects due to labor shortages or supply chain issues. According to JLL, a leading real estate services company, construction costs have risen over five percent in the past year and have upward pressure to continue to rise, reflecting an inflationary trend. This is indicative of a hard trend with regard to construction costs.

Skilled labor shortages with an aging workforce, compressed construction schedules, diversity in the workforce along with language impediments, project complexity, and health are all driving changes in the construction industry. With about a third of the industry workforce being Hispanic, language barriers exist.

***The hard trends for the construction industry include an enormous bow wave of infrastructure projects, labor shortages, safety mitigation, off-site modularization, and a focus on sustainability, resource-efficiency, and environmental responsibility. Innovation is to be accelerated.***

The industry is investing in technology and innovation, but much more is needed. Only about a quarter of the companies have begun earnestly to lean into this evolving area of cost, financial, and safety incidents savings. Hard trends include:

- Artificial intelligence (AI)
- Cyber security
- High speed data analytics
- Augmented reality
- Digital twins
- Voice-enabled devices
- The internet of things
- 3-D printing
- Mobile device use
- Vision communication
- e-transfer of data and funds
- Wearable devices
- Social community communication and learning
- Drones
- Location awareness
- Distributed energy and storage

Technology is supplementing labor to be even more effective in efficiency and safety. Artificial Intelligence (AI) is being explored in areas of personnel and quality observations, security, safety, and quality requirements. With recent studies by Mordor, the construction AI market was about \$466 million in 2020 and in 2026 is projected to be worth \$2.3 billion. Industry-wide investment increases are planned for this type of investment, and are expected to be a tremendous increase over the previous decade's investment in AI by the construction industry.

Additionally, firms are investing in machinery and equipment such as global positioning guidance systems, autonomous vehicles, 3-D printing, and wearable tracking devices. Wireless sensors are embedded in gloves, vests, and hard hats. These monitor real-time repetitive movements, reflect vital health signs, and collect data on slips and falls. In amplification, injury, exhaustion, and health indicators are present for action.

The industry is projecting increases in off-site construction, which will provide financial savings in labor costs, schedule reductions, and safety enhancements. Modularization traditionally has reduced on-site labor congestion.

## Connections and Opportunity

### What connections can be taken from the data?

- People are finding that the pandemic has altered their work lives. They have had to juggle their personal and work expectations to accommodate changes that have been thrust upon them.
- Some are finding their current work situation unacceptable due to interpersonal, organizational, and societal demands.
- There are many job opportunities, but candidates need to be careful not to simply jump to a new situation as there are pressures by employers to soften the realities of the work environments.
- The trend of job resignations is one that has been increasing for over a decade. The aging workforce contributes to that trend.
- The construction industry has an increasing need for workers. Young people are not looking to work in construction related fields.
- The worker shortfall is leading to higher costs and safety concerns.
- The workforce is becoming more diverse and has expanded needs in terms of training and job assistance.

### What opportunities are apparent from the data?

- Those hiring must be more focused than ever on the employee. Make sure the work environment is welcoming to all.
- Check in with each employee routinely to ensure issues are well understood and accommodations to their needs are applied wherever possible. Treat people with care and understanding.
- Check benefit and pay practices to be current with the changes occurring in society as a whole.
- Use experienced workers for their expertise, even if it is in a consultant role.
- Innovation is a *must*, not a “nice to have.” Innovation in employment policy, training, hiring, and new technology is necessary. Look at the entire scope of the industry to press for improvement.
- Technology applications in many forms are needed to hold down cost, to improve efficiency, to make up for scarce human resources, to improve safety, and to show concern for human health.
- Off-site work and modularization are tools to improve site management, safety, and labor costs.
- Supply chain improvements are simply a requirement to future success.
- Energy use and storage along with environmental and sustainable practices are opportunities for cost control and work enhancements.

## Summary

The Covid-19 pandemic that began in early 2020 and continues today, along with the Great Resignation that has seen tens of millions of U.S. workers leave their jobs, is driving an unheralded change in the construction industry. Hundreds of thousands of job openings exist, but the industry is hard pressed to attract the Gen X's and Millennials into careers in construction. At the same time, the baby boomers who have spent their careers in construction are now approaching retirement *en masse*, leaving a void in institutional and industry-wide knowledge. The needs brought about by the pandemic must be addressed, specifically the needs of employees.

Innovation within the industry must rapidly accelerate in order to keep pace with the new realities facing both employers and employees. Among the hard trends to use are AI, cyber security, and myriad other technologies. Innovation is a must, as is the use of new technologies.

## About the Author

Ron May was elected to the National Academy of Construction in 2020. He is a retired executive from DTE Energy. A consultant on leadership and industry issues, he remains involved with the Engineering Advisory Board for Oakland University and as an Executive in Residence at the University of Michigan's Ross Business School Center for Positive Organizations. He is an innovator, change agent, teacher, mentor, and leader in technology and business with extraordinary contributions to lifelong education and knowledge sharing.

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