Your Guide
TO DOING BUSINESS WITH
FDOT

Brought to You Through
a FDOT Partnership With
CEI DBE Supportive Services

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How Smart Sensors Can Strengthen Concrete on Jobsites

Inefficient construction scheduling is a longstanding problem that often costs the industry and society greatly.

Just a few hours of delays per floor in the construction of a multistory building can cost more than a million dollars. General contractors can incur contractual penalties of up to $50,000 a day for not meeting a project's deadline. This is in addition to the extra costs for equipment and labor when a project exceeds its projected timeline.

Similarly, public road construction projects that surpass projected timeframes add to traffic congestion, which costs drivers an estimated 21 gallons of fuel and 50 hours of time per year. This adds up annually to a loss of more than $1,080 per commuter and a nationwide cost of over $160 billion. Each United States household, on average, spends $3,400 per year coping with infrastructure repairs and deficiencies.

Yet opening buildings, roads and bridges too early can result in structures of lower strength. This not only reduces their life span but also raises crucial safety concerns. The collapse of the Hard Rock Hotel in New Orleans, Louisiana, while under construction in 2019 and also the Florida International University bridge in 2018 — both attributed to structural flaws — resulted in not only the loss of the properties, but also multiple deaths and injuries.

Inaccurate Testing Methods Cause Costly Delays

One key problem in construction scheduling is the lack of efficient testing techniques for determining the maturity of the cured concrete. Current techniques for evaluating concrete maturity involve creating concurrent samples of the concrete as it is placed. The sample specimens are tested at predetermined times to help determine when the placed concrete can be used safely.

Unfortunately, these samples often do not accurately represent the in-field poured concrete due to differences in the retention of heat and in the exposure to environmental conditions during placement and curing. Samples typically show lower strengths than in-field concrete placements. As a result, this current testing methodology causes unnecessary construction delays — burdening society substantially in time, resources and sometimes physical injuries.

New techniques to determine concrete strength in real time (such as the maturity method), continue to be developed. However, they are still fraught with limitations and cannot address the complex reality of modern concrete mixes and applications that often include various additives, corrosion inhibitors, accelerators and viscosity modifiers that can compromise the reliability and veracity of the testing.

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About The FDOT

The goal of the DBE Supportive Services Program is to increase the number of DBEs participating on FDOT contracts and facilitate the opportunity for DBEs to obtain contracts. The services are designed to:

- Assist established construction firms to move them from bidding as a subcontractor to bidding as a Prime Contractor to produce sound bids.
- Provide access to training increases DBE expertise in handling of daily business operations.

About The Program

The Construction Estimating Institute (CEI) works with FDOT as the statewide provider of the federally funded Disadvantaged Business Enterprises (DBE) Supportive Services Program. We want to increase the number of certified DBEs participating in highway and bridge construction, as well as assist DBEs in growing and eventually becoming self-sufficient. Additionally, CEI provides supportive services by assisting prime contractors and consultants with identifying DBEs for subcontracting opportunities on priority projects.

5 Interpersonal Skills Every Project Manager Should Possess

How soft skills influence people and affect your project

The According to a recent report published by project management researchers at Brandeis University, technical skills alone do not determine a project manager's success. In fact, some of the most common reasons for project failure include a lack of clear expectations, poor leadership and misalignment between workers and management. These causes of project failure are not the result of inadequate technical skills. Instead, they are often the result of inadequate "soft skills."

Soft skills are personal attributes that allow project managers to build team morale, motivate workers and manage conflict. They are not "hard skills" that project managers necessarily learn in school or in the field, unless they actively seek to learn them. Many successful project managers naturally possess an array of valuable soft skills. And for those who feel as though they are lacking in the soft skills department, there is good news. Brandeis researchers found that most people can develop these skills with awareness and effort.

A project manager with the right soft skills is essentially skilled at managing people. Without the right interpersonal acumen, a project manager may find that he or she has to scramble to keep teams on track and motivated. On the other hand, with the right soft skills, project managers spend less time worrying about factors like employee morale and motivation and, instead, can focus on planning, risk management, project quality and completion.

There are a few soft skills that are particularly useful for construction project managers to possess. The following skills set the good managers apart from the rest and can significantly influence how efficiently and successfully projects are completed.

1. **Communication**

This skill is probably the most important. Project managers who are good communicators are able to help teams understand the scope of their duties and solve problems as they arise. If a project manager is not able to clearly communicate expectations, a project will be more complicated than necessary from the very start. Project managers who are still developing their communication skills can benefit from taking time each day to think about what their teams need to know and then conversing with them about those subjects. They can also benefit from making an effort to listen to their team members in order to improve any dialogue overall.

2. **Leadership**

This is the ability to inspire, motivate and govern when necessary. Highly developed leaders provide positive feedback and constructive criticism. They keep their cool in stressful situations. They communicate the organization's vision clearly and succinctly, and they provide opportunities for professional development while promoting a healthy, supportive company culture.

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