

CASE STUDY

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### AECOM Tishman Raises the Bar for Jobsite Safety and Productivity

ENR Top 10 Firm Implements the **Spot-r**<sup>®</sup> Platform at Its New Orleans Four Seasons Project

Known for its complex construction projects like One World Trade Center in New York City – the tallest tower in the Western Hemisphere – AECOM Tishman, a multinational construction firm, prides itself on its bold and innovative approach to its work. This spirit of innovation is also evident when it comes to ensuring the safety of all workers on AECOM Tishman project sites. The contractor turned to Triax Technologies and its Spot-r IoT platform on its New Orleans Four Seasons Project, a joint venture with Woodward Design + Build, to gain visibility across the jobsite, increase its emergency preparedness and maximize safety practices.

"There's nothing more important to us than making sure that everyone makes it home safely at the end of every shift," said Casey Sullivan, Assistant Project Manager, AECOM Tishman. "That means knowing where our workers are, equipping them with the right safety tools and being prepared for emergencies. It was such a challenge to try to do that with manual methods, but now with Spot-r, that's exactly what we're able to do – and our safety practices on the New Orleans Four Seasons Project are the best they've ever been since we initiated Spot-r onsite."

#### The challenge of manual processes

Because of the technical challenges of connecting a constantly changing construction site, like most construction firms, AECOM Tishman previously relied on manual headcounts and safety checks. But, with hundreds of workers spread across a large jobsite at any one time, it was impossible for the project's construction management team to see everything that was going on, know where workers were or keep track of the progress. Any information that management did receive was delayed, which is particularly problematic when it comes to safety. In an environment with so many moving parts, heavy machinery and the inherent dangers of a jobsite, it became clear to Sullivan that the firm needed to bring in an advanced technology solution to take safety to the next level.

Adding to the challenge is the complex nature of the New Orleans Four Seasons project. This first implementation of the Spot-r technology was on a large historic building that required AECOM Tishman to make hundreds of repairs to the original historic façade while replacing all of the window units of the existing exterior envelope with curtainwall units, providing demolition services to take the building back to the concrete column and floor structure, as well as re-building the inside of the building into a Five Star luxury hotel and residence. The project also included adding one story to the original 33-story structure and 70,000 square-feet of new space in two new five-story wings at the base of the building. The layout of the building, with long corridors, thousands of rooms and dead ends, made visibility into worker location even more difficult.

## Providing real-time visibility, location, communication

Now, each worker is trained and signed into the Spot-r program during the project safety orientation process. Once trained and enrolled, the workers enter the jobsite through a secure entrance where site security provides them with a Spot-r Clip® that they attach to their belt. The clip is a small IoT sensor that automates time and attendance and provides realtime location by project floor and zone. These devices, which are connected to a secure wireless network, automatically notify safety personnel of falls and also allow workers to communicate any hazard or incident. "Now, a project manager can look at a dashboard to see where everyone is on the site, in real time. It's important for us to be able to locate everyone at a moment's notice in case of emergency, and get them out of the building guickly. We also now know the identity of each individual onsite and can identify any individual sending an alert in an emergency and his/her location. Spot-r's secure site and access control feature also allows us to keep unauthorized people off the site and out of harm's way."

That capability came in handy when workers found trespassers on the site and used the pushbutton alert on their devices to notify the AECOM Tishman construction management team of the problem. AECOM Tishman notified the authorities and the police arrived immediately to take charge of the problem. During the process a general evacuation alert was issued by AECOM Tishman through the Spot-r system and sent out to all devices. The site was cleared of all workers in just a few minutes, ensuring all were out of harm's way.

The project has not had any serious safety issues to date but training exercises have taken place. Through those we demonstrated that once an alert was sent from a worker's Spot-r Clip or a worker activates the emergency button (as was the case above), AECOM Tishman Safety Managers and Superintendents can reach the alert location within 90 seconds.



#### Removing the hoist bottleneck

While AECOM Tishman implemented Spot-r for its safety benefits, the firm soon discovered its value in enabling increased productivity. The company needed to address the bottleneck of workers waiting for hoist elevators, which resulted in significant downtime. It used Spot-r Point of Interest Tags, which monitor the location and utilization of machinery or equipment, to get insight into how the hoists were being used. When the data uncovered that they often were delayed on particular floors where they needed to unload heavy materials and machinery, AECOM Tishman decided to dedicate two elevators to materials and two to workers, which went a long way in alleviating the problem.

Additionally, because these tags communicate with workers' Spot-r Clips through the Spot-r network, AECOM Tishman was able to see who was waiting at the hoists, and determined that there were many who were not moving heavy equipment and could instead use stairs to move between floors.

**Clearing workers onto the site** 

the PEs for most of the day. Now, by using Spot-r Clips as automatic identification, the workers are able to enter the site efficiently and a PE can spend his/her time assisting the construction management team, saving hundreds of thousands of dollars throughout the 30-month project.

#### **Measuring progress**

Spot-r technology also provides an effective way to measure productivity. By using EquipTags on the 24 swing stages that encompass the building during the façade repair/replacement process, Sullivan and her team can see if each swing stage is being used on upper floors or sitting idle at ground level. Knowing how many of the swing stages are in use each day and for how long each is used, provides a good indication of the progress that the subcontractors are making on the site. It also allows the AECOM Tishman team to review productivity and to move or increase crew resources to specific locations of the building façade to increase production.



# Double checking manpower hours for billing

AECOM Tishman shares time and attendance records automatically captured on Spot-r Clips with subcontractors to support their billing processes, and it serves as a reliable method to double check worker hours for the Contractor Controlled Insurance program instituted on the site. In addition, based on how much work has been accomplished on the site, and how many people were needed to do that, Sullivan is able to determine the remaining manpower needed to complete the project to meet critical deadlines, and from that, calculate the cash flow that is required to pay subcontractors through the completion of the project.

"We implemented Spot-r to help us improve our safety culture, and we were pleasantly surprised to see the many productivity benefits we received from the technology," said Sullivan. "By gaining valuable insight into how we can reduce downtime and increase productivity, and being able to measure our progress, we are not only able to better manage operations and costs, but also improve our ability to complete projects on time and on budget."

#### Next steps

In the future, the AECOM Tishman New Orleans Four Seasons project team plans to use the Spot-r data to forecast what future jobs may cost to more effectively plan and bid for projects. They are also looking into using EquipTags on all machinery and equipment so they can locate them more quickly and avoid wasted downtime as well as have training and licensing of equipment operators documented in Spot-r while the Clips communicate with the equipment to ensure that only qualified personnel are operating the machinery and tools.

"The more we use Spot-r, the more innovative uses we find for the technology. And in the end, I can rest assured that on this project we have elevated our safety measures and prepared ourselves to address any emergency that may come our way. I've been around several large jobsites during the past few years and with Spot-r on board, this is by far the safest jobsite I've ever seen," Sullivan said.

