

## Applied Software Successfully Implements a Robotic Layout Tool

## PCL Construction

PCL Construction is a multi-national company with offices in the United States, Canada, the Caribbean, and Australia. The United States division alone completes over \$7 billion a year in contracts. As a diversified general contractor, PCL Construction can handle any type of construction project from residential, to commercial, industrial, or heavy civil.



### Overview and Challenge

PCL Construction was in the process of building the Waiea, a luxury high-rise project, in Honolulu, Hawaii. In Hawaiian, Waiea means “water of life” and James K.M. Cheng, the architect, used this for his inspiration when designing the curtain wall.

Upon completion, the flowing glass curtain wall would beautifully mimic crashing waves. Each of the two towers would have over 300 embeds per floor that needed to be precisely set.

For this task, PCL Construction assigned Thane Werner, a civil engineer, to ensure that every detail regarding the curtain wall was correct before the concrete was even poured.

Based on previous partnerships with Applied Software, Mr. Werner was aware of robotic assisted layout tools and made the suggestion of using something similar for Waiea, to his team.

### Implementation Solutions:

1. Use robotic layout tool to verify layout
2. Save man hours by using one employee





### The Solution

Based on the initial conversation, Applied Software helped Mr. Werner implement a robot assisted, cloud-based, layout system. Start-to-finish, creating the new workflow took roughly two hours.

Once they were up and running, Mr. Werner was able to verify all of the layout details of both towers within a one-hour timeframe per tower.

The new workflow allowed Mr. Werner to verify the exact location of each individual embed and to go directly into the BIM model to verify details such as - which type of embed was supposed to be used.

The first impact of the new workflow was saving approximately fourteen hours per week.

Perhaps the more important savings was that the layout was now 100% verified before each pour. From a scheduling perspective, the new workflow saved time but also increased predictability.

*"The new workflow helps save thousands of dollars. Each weekly pour has 300 embeds and in the past usually 3 or 4 were wrong, which meant chipping them out and re-pouring the concrete. With the new workflow I can ensure 100% accuracy of the layout by verifying all the information about each embed. The new workflow is super helpful!"*

Thane Werner, Engineer, PCL Construction

