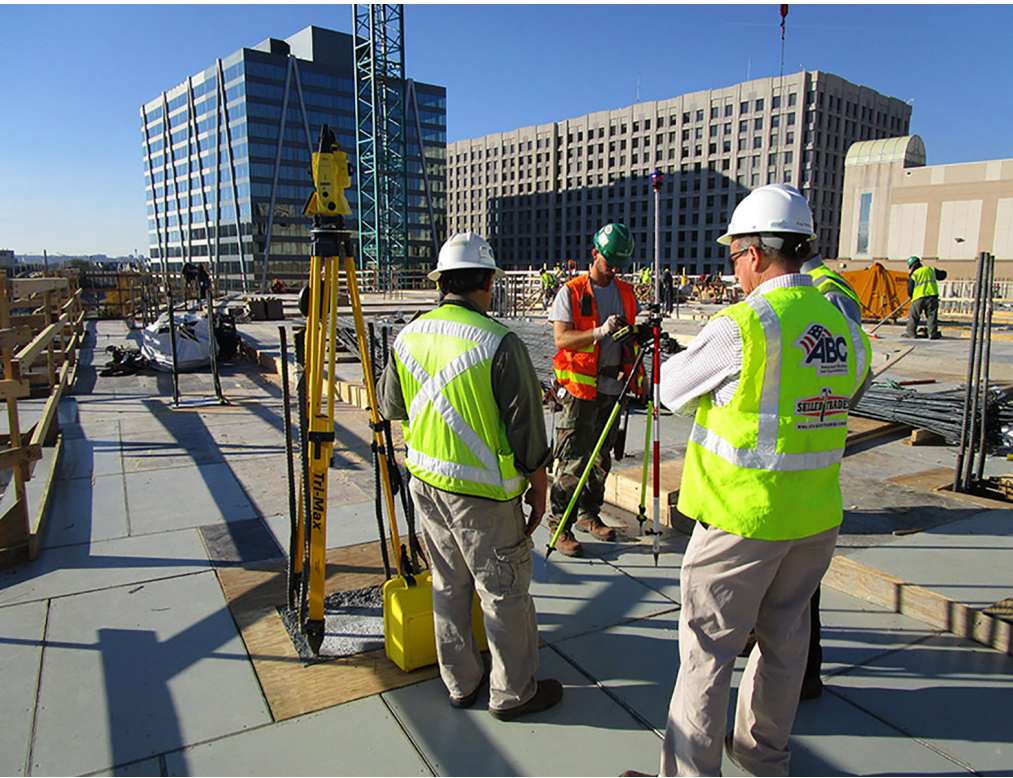


Leica Geosystems **TruStory**

Facchina goes full speed ahead using BIM for developing office buildings



Facchina

■ Company

Facchina Construction Company
Washington D.C. area
<http://www.facchina.com/>

■ Challenge

Building a 20-storey, 500,000ft² (46,450m²) above grade office structure with faceted and complex slab edges as well as sloping columns with offset orientation.

■ Location

Greater Washington D.C. area



■ Equipment

Leica iCON robot 60
Leica iCON CC66 tablet

■ Objectives

To use BIM (Building Information Modelling) for layout,

- RFI and design clashes
- Creating 4D time schedules
- Quantity checks when ordering concrete
- Providing column schedules with accurate heights for field use
- Integrating field survey

■ Benefits

- Simplified workflows with field and office data coordinated in real-time
- Use of 3D visual on-site
- Reduces rework by 60% - 80%
- 3D scheduling and quality checks for ordering supplies
- Design rework can be done remotely and in real-time

Facchina Construction Company, one of the most respected contractors in the Washington D.C. area, is a multidiscipline provider of heavy highway, concrete frames, site development and commercial building services and has been using building information modelling (BIM) since 2011, but the firm recently went full speed ahead using the BIM process to develop major office buildings.

The company was tasked with handling a 20-story, 500,000 square foot (46,450m²) above grade office structure located just outside of D.C. that presented numerous challenges. Though the south face of the building is on a radius grid line, the slab edge is faceted and complex. The project also includes numerous

sloping columns with an offset orientation.

“Previously we had been using 3D models for early detection of missing or conflicting information and other potential problems in 2D drawings by modelling the geometry of buildings,” said Scott Hover, Facchina’s BIM manager. “Now we are using BIM, not only for Request For Information (RFI) and design clashes, but also for creating 4D schedules, which refers to the intelligent linking of our time or schedule related information. Quantity checks when ordering concrete, providing column schedules with accurate heights for field use and integrating field survey.”

Facchina is using BIM for layout and to participate in virtual design coordination efforts. So far, both the

field teams and the back office are impressed with the results.

"At the most basic level, our crews in the field now have a visual picture of what they are framing up, wherever they are working, rather than just taking direction from layout engineers or a foreman," said Hover. "Now they can actually see it, which makes a huge difference."

A different view from the field

Facchina is using the Leica iCON robot 60 and the Leica iCON CC66 tablet – both of which they purchased for this specific job.

"With the Leica Geosystems system, I have three permanent targets on the construction site," said Melvin Nolasco, Facchina's field engineer in charge of layout for the concrete frames division. "I can set up the total station with just one click using the set-up pilot feature, which is a huge timesaver. We don't even have to stop working or take the tablet to the office," said Nolasco. "We just put the files into the data collector and keep working."

The firm plans to enable future sites with Wi-Fi so that files can be sent directly to the tablet. Not only has BIM made the construction process more efficient, but it has also been very cost effective. Scheduling and material estimates are more accurate, and reworks have been drastically reduced because potential clashes can be detected before construction.

"As well as rework being reduced," said Hover "the ability for everyone – from the field all the way to the supervisor level – to plan months ahead has been invaluable."



Product Highlights

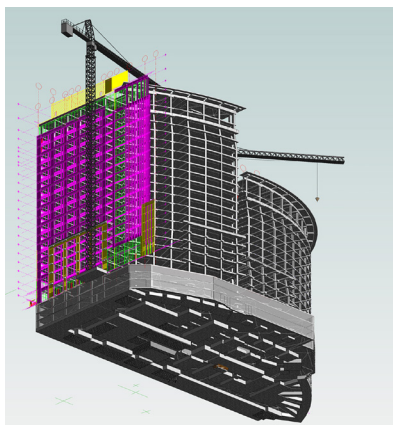
- Setup Pilot onboard the iCON robot 60 automatically performs the total station setup with just one click.
- Target Snap locks to your targets, ignoring other prisms
- The iCON build field software conforms to your specific layout tasks from either a 3D model or 2D drawing
- The same intuitive iCON build user interface is also onboard the iCON robot 60 display and requires no additional software training.

On this project, the design team is producing a 3D construction model, broken apart by approved pour sequencing, for the concrete layout including slab opening, column location and slab edge.

"The very early return on investment for the equipment is being able to find conflicts within the drawings," said Hover. "I have the opportunity to virtually build before we mobilised anyone to the site. If I find potential clashes that can impact cost and the schedule months in advance, before our guys even get out there, it pays for itself."

What's Next?

Facchina has been so impressed



with the results that they plan to purchase another robotic total station this year and extend their use of BIM beyond layout to include 4D scheduling.

"With 4D scheduling, we can check the logic of the project manager's schedule because you can see the planned activities in real time," said Hover. "We've even heard of people doing 5D schedules where they can cost load the model."

Hover said that as it becomes more commonplace to use BIM in the industry, more and more general contractors are requiring subcontractors to participate in their virtual design efforts. This has required field crews to learn some new skill sets.

"At the very beginning, there was some resistance, which is natural when there is a change in the workflow. But now that our teams have seen what BIM can do and have been trained on how to use it, just about everyone from the CEO to the foremen see the value," Hover said. "We are all very excited about the results and can hardly wait to start with our next project."