LASER SCANNING

Not just for MEP Coordination

by Mike Fernholz
If you are thinking about using laser scanning just for the sake of MEP coordination, you could be missing out on some big opportunities.

Laser scanning of existing and renovated data centers has been used primarily by contractors and engineers to aid mechanical, electrical, and plumbing (MEP) coordination through the post-processing of existing MEP and structural content. It’s also been used as a design assist for architectural and structural engineering teams. But if you are only thinking about laser scanning during the MEP coordination phase, you probably aren’t getting as much out of the tool or equipment as you could.

On mission critical projects preplanning is everything. Consider laser scanning as a tool that can be used at the preconstruction, construction, and close-out phase of a project. In the pre-construction phase, laser scanning can provide data center owners with a detailed image of their facility before it is even built. It is hard for some owners to visualize the final product through black and white 2D drawings. However, scanning, modeling, and creating a visual representation of a project within the 3D environment helps the owner make better decisions about the building and its end product. Laser scanning reduces the time required for field investigation, greatly reduces the number of unforeseen conditions, and therefore, reduces risk of change orders during the construction stages of the project.

Dave Leonard, Chief Data Center Officer of ViaWest said, “We have probably saved hundreds of thousands of dollars in change orders due to using laser scanning early in the process. JE Dunn introduced laser scanning and BIM to eliminate conflicts such as pipes running into other pipes, and that has been a huge benefit to everyone involved in the process.”

Some clients have been requesting a laser scan of their building to assist in the development of the contract documents. We’ve recently worked with Swanson Rink, one of the industry leaders in 3D MEP design, and they were able to incorporate our post-processed laser scan to produce more accurate design drawings. Detailed and complete design documents help ensure more accurate pricing.

The value laser scan technology brings continues on to the construction phase. In conjunction with a better design BIM model, the post processed laser scan, we introduce fabrication BIM from our sub-contractors. The enhanced level of coordination using these technologies provides opportunities for multi-trade prefabrication during construction. With a detailed, fully digital model of an existing space, large amounts of prefabricated assemblies can take place off site, simultaneous to other construction activities. This can help with commissioning, safety, preventing weather delays, cost, and schedule.

Another use for laser scanning that we are helping data center owners realize is in leasing, marketing, and post-construction considerations. Laser scans are being used to lease space at colocation data centers. In the past, our clients have hired a marketing company to develop a 3D model of their facility to showcase it for potential clients. Additional marketing cost can now be avoided because the digital model that was built from the laser scan can be used for this purpose.

If you are considering investing in laser scanning equipment to aid in preconstruction, construction MEP coordination and even post-construction and marketing activities, you should consider several factors. We have compiled a top ten list to aid in laser scanning success.

**TOP TEN TIPS ON SUCCESSFUL SCANNING:**

1. Need a dedicated team where everyone is trained to laser scan.
2. It is critical to have a scanning plan in place prior to showing up to the site. Scans can become unusable if the point of reference is lost or the order and flow is incorrect.
3. Establish site control prior to laser scanning. Control can be used for building and system layout during construction. This allows you to scan in the future if a section of the building is missed during the original scan.
4. Discuss what the electronic deliverable will need to be for the designer to leverage the technology. Not all designers use the same design software.
5. Always scan more areas than you need. It’s easy to add areas to a scan during the scanning process. Trying to go back to add another area is difficult.
6. Have a plan on paper before scanning. This will reduce scan time.
7. Laser scanning is line-of-sight technology. It’s important that you schedule timing around demolition activities.
8. If you need to scan prior to demolition; you may need to remove ceiling tiles as much as possible to ensure adequate coverage of the scan.
9. If the project schedule requires scanning prior to demolition it could require more time for data collection process. Plan accordingly to determine the best time for laser scanning to occur.
10. We have found success when the general contractor leads the scanning process. Because the GCs hold the subcontractor contracts, they can better manage the coordination among the full team.

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