LASER SCANNING ELEVATOR SHAFTS:

More information, less time, ZERO HARM

The traditional process for getting an as-built reading of an elevator shaft requires engineers to go floor by floor with a measuring tape to survey the width of the shaft at each floor opening. These measurements capture the changes in the shaft width from floor to floor, providing subcontractors with information necessary to assess how far off the wall they need to shim the rails to ensure they are perfectly straight for an elevator to run smoothly through the shaft.

Not only is the traditional surveying process time intensive, it puts people at risk every time they have to access a floor opening, sometimes at 20 or more stories above the ground level. In addition, traditional surveying only captures a fraction of the elevator shaft information. For example, with traditional surveying, project teams can only get the measurements at the floor openings, not in between floors. That is, until now.

Ready to learn more about how laser scanning elevator shafts can help your project? Contact us at relentlessallies@balfourbeattyus.com.

Balfour Beatty Construction

Case Study: Hoffman Town Center
Alexandria, Va.

Accurate as-built data is a critical component of any planning and design process – a fact that rings especially true in the realm of adaptive reuse projects. For buildings that were originally constructed decades or more ago, like so many in the metro-Washington D.C. area, the little data that is available is often inaccurate.

That's precisely why Balfour Beatty Construction has utilized laser scanning instead of traditional surveying on the first phase of its work at Hoffman Town Center in Alexandria, Va. When the project team considered how to approach the renovation of a 348,000-square-foot, 1960s era office building in the development, laser scanning was the obvious choice to obtain an exact digital reproduction of existing conditions.

Among multiple applications of laser scanning on the project, the team developed a way to laser scan elevator shafts and as a result, accomplished three things:

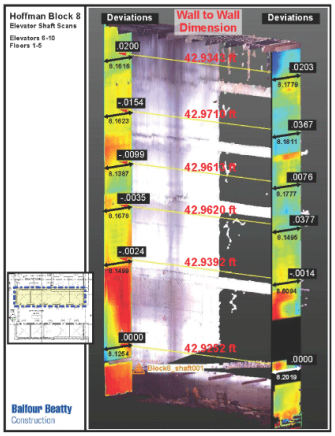
- Engineered significant safety risk out of the process;
- Reduced the time it takes to survey elevator shafts;
- Captured 100% of the elevator shaft data.

To leverage the laser scanning technology, the project team crafted an outrigger arm to safely hold the scanner in the middle of the elevator shaft. By using the outrigger arm, the team was able to keep safety barriers in place on each floor. And, because it was no longer necessary to secure team members in safety harnesses while surveying elevator shafts, a major risk was eliminated in the process.

Using the outrigger arm design, the Balfour Beatty team was able to scan three to four floors at a time, significantly cutting down the time it takes to survey an elevator shaft. In this manner, the laser scanner is able to capture a complete reading of the entire elevator shaft, cataloguing 100 percent of the dimensions for accurate, information-rich, as-built documents.

With the complete dimensions of the elevator shaft measured, the team uploaded the scans into 3D laser scanning software. The result is an as-built document that captures 100 percent of the dimensional information about the elevator shaft for subcontractors to then assess and ensure rails are accurately installed.

Value for All
Design and construction plans are sometimes created with an incomplete or incorrect understanding of existing conditions. Problems may occur as a result of the new design being incompatible with actual existing conditions. Such problems are generally not realized until construction is underway, a point at which re-design and re-work are difficult and costly. With laser scanning, a project team can capture a clear, thorough and accurate understanding of actual conditions, and validate that the new design fits the existing conditions prior to construction.



Hoffman Block 8 (National Science Foundation Headquarters) elevator shaft as-built created using Trimble RealWork's measurement and point cloud to model deviation tools and Bluebeam.

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