AVVIR®

CASE STUDY

AECOM: Leveraging reality capture analysis.

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Manhattan West Project

AECOM is a world-class infrastructure consulting firm driven by a vision of a world where infrastructure creates opportunity for everyone – uplifting communities, improving access and sustaining our planet. AECOM Tishman is a fully owned subsidiary of AECOM and sits within their Construction Management business. Since 1898, AECOM Tishman has built more than 600 million square feet, managing some of the largest and most complex mixed-use and mega development projects in the U.S.

The Challenge

Alternative asset manager Brookfield tasked AECOM Tishman to evaluate automated progress tracking solutions and ascertain the best-in-class offering for deployment. The Manhattan West mega project was the ideal candidate for the pilot, with 7 mechanical floors and 236,966 SqFt involved.

Christian Peña, Project Manager – Virtual Design and Construction (VDC) felt Manhattan West would be worthy to gauge the capabilities of the Avvir platform. **"Managing reality capture data sets can be daunting and we needed a solution to do the heavy lifting of processing and visualizing data in objective ways."**

For AECOM Tishman's Project Director Moheb Beshara, the pain points on a large-scale project like this can be put into three buckets: tracking progress, identifying deviations, and managing ongoing design changes throughout construction. Clashes on the jobsite become costly rework, **so the aim is to proactively address deviations ahead of time by first capturing deviations between field installations and the Building Information Model (BIM).**

> "...they could proactively get ahead of predicted clashes that had to be addressed in the field."
>
> SUPERINTENDENT KEVIN MARREN

The Solution

The Avvir suite of communication tools was well placed to deliver an accurate system of record with meaningful project insights. Avvir Inspect® deviation analysis and Avvir Progress® tracking were the solutions put to the test, plus several custom reports uniquely tailored to AECOM Tishman's needs. Reality capture was conducted weekly, with Structionsite photo capture and terrestrial scans.

Peña highlighted, "One of the big service differentiators we noticed with Avvir was the personal element". All key users were guided on how to use the Avvir portal via in-person training sessions and ongoing support throughout the project.

The elements of the pilot solution were 3-fold:

1. **Progress tracking:** charting progress by comparing weekly 360 photos to the BIM and manipulating the data to produce a spectrum of custom reports.
2. **Deviation analysis:** automating comparison between the BIM and laser scans of existing conditions to identify discrepancies between design intent and reality.
3. **BIM coordination:** identifying discrepancies between the BIM location and as-built reality, and automatically pushing updates to the model based on existing conditions.

“We can focus on solving issues, not finding them.”

PROJECT MANAGER CHRISTIAN PEÑA

The Result

For Beshara, the outcome was a blend of meaningful data synthesized in a way that was easy to communicate:

- **Weekly Progress:** portal data visualized in graphs in power BI
- **Labor Productivity Projection Analysis:** forecasting progress per trade labor data
- **Impact Analysis:** future-looking critical clash detection
- **Room-Specific Progress:** tracking on related BIM elements for the Switchgear room

“I was able to track construction progress on a really granular level so it’s more meaningful to the building owner.”

With the Avvir platform, 112 critical forward-looking clashes were identified within a 2-month period. Progress reporting on a weekly basis led to an improved ability to flag issues and nimbly adjust work in the field. Data was provided at a high level for the entire area per trade and also a more detailed breakdown, per floor and per trade. The Power BI custom reports were equally powerful in demonstrating the top performing trades and rates of progress per floor, per week.

Superintendent Kevin Marren felt the step change in effectiveness immediately. “I could move faster, giving updates to the project team on a weekly basis so they could proactively get ahead of predicted clashes that had to be addressed in the field.”

Furthermore, resourcing was enhanced, with the team not having to invest **“the massive amount of labor hours that typically goes into producing as-built BIM models”, in Beshara’s opinion.**

The Conclusion

Integrating Avvir reality analysis into 360-degree capture workflows has led to substantially enhanced client communication, with the BIM manager, project managers and superintendents better positioned to quickly adapt to changes in the project. The team leveraged the comparison of existing conditions to the BIM in order to communicate large datasets in a visually digestible way across their teams, to trades and to clients.

Avvir’s ability to harness the power of reality capture data to create a digital twin opened the door for collaboration on the 2 Manhattan West with Brookfield and Willow, who offers its WillowTwinTM digital twin technology. That included accurate information about all of trades captured during construction which improved the deliverable and technology that Brookfield is using on their properties.

The level of confidence in recommending Avvir to Brookfield was high, and the proof points have validated Tishman’s adoption of Avvir reality analysis going forward. Peña sums it up well; **“Avvir lives up to its mission of being ‘a system of record for buildings’ and their technology simply makes our job easier. We can focus on solving issues, not finding them.”**