

## Page & Turnbull Harnesses Point Cloud Technology for Historic Renovation

Page & Turnbull, one of the first architecture firms in California and the first in the San Francisco Bay Area to dedicate its practice to historic preservation, is breaking new ground. Over a number of years, the firm—from its primarily AutoCAD days to Revit adoption—has relied on Ideate, Inc. not only as the firm's provider of Autodesk software, but also has turned to Ideate for training and support.

Recently, Page & Turnbull has discovered ways to harness the power of point cloud technology. With advanced spatial measurement and 3D visualization services consultant Epic Scan, Page & Turnbull is taking command of data remotely for collaborative use and eliminating many of the inconsistencies in field measurements.

“ We started using the process on more and more job sites where distance and building form made it feasible... These were very detailed and measurable point cloud images...that represent existing conditions which we are using as reference to our Revit models.”

Page & Turnbull holds more than 100 awards for its work, and is among the longest-practicing historic preservation specialty firms in the country. Honors have been bestowed by the National Trust for Historic Preservation, the American Institute of Architects, the U.S. Federal Government, and the California Preservation Foundation.

### Where point cloud evolution is taking Page & Turnbull

After delving into the technology with consultant Epic Scan, Page & Turnbull recently took point cloud a step further with a Grand Canyon project, the Lookout Studio. Epic Scan includes a platform for virtual project site access from a web based portal. Using Leica TruView, this functionality enables project partners to visit a sitemap and select from a multitude of positions indicated by a simple green dot icon.



Snapshot: Lookout Studio Panoramic View

Each dot corresponds to a panoramic camera angle. Once the image is opened, the project partner can view a 360 panorama, zoom in and out, click and drag, and mark up.

### Where it started for Page & Turnbull—early explorations into laser scans

According to Tom Dufurrena, Principal, Page & Turnbull, “We first started using laser scans on the Desert View Watchtower at the South Rim of the Grand Canyon. We explored the technology for our AutoCAD drawings because of a couple of challenges. First was the building shape and location; it is a round, tapered natural stone tower perched at the very edge of the Grand Canyon. It would have been difficult to draw and model precisely with typical measurement tools.

“Secondly, the structure is quite remote from our offices. We wanted the scan data to review specific conditions from our office in San Francisco and to use our time on site to maximum benefit.”

Page & Turnbull first consulted with Epic Scan while building the Lookout Studio at the Grand Canyon in order to further analyze complete utilization of the cloud data and coordinated high-resolution photos. Epic Scan was able to produce detailed and measurable data, as well as a photo-viewing interface functional for Page & Turnbull and their clients. Page & Turnbull then used Kubit PointSense tools for the management and processing of laser scan data within AutoCAD.

“Cloud point data within AutoCAD allowed us to precisely measure, check levels, profiles, etc. It was very helpful at that time. After that experience we started using the process on more and more job sites where distance and building form made it feasible,” Dufurrena says.

For several AutoCAD projects that followed, Page & Turnbull asked Epic Scan to create point cloud references. “These were very detailed and measurable point cloud images of a building that we could use to represent existing conditions which we are using as reference to our Revit models,” Dufurrena adds.

## More advanced applications of point cloud

As Page & Turnbull became more accustomed to and familiar with AutoCAD and Revit, the firm started utilizing both for point clouds and to manipulate the data. More and more, the firm is relying on Revit. Dufurrena says, “Currently the cloud points don’t host Revit elements; it would be seen more as a 3D photo that is connected to the model being built. That is somewhat of a limitation, but it is helpful to use as a reference without having to redraw everything, saving us time especially in existing buildings.”

## TrueView

Part of the information provided by Epic Scan for the Lookout Studio was the Leica TrueView project viewing portal. As Dufurrena explains, “The Lookout Studio is located in one of the most beautiful places in the world, but it takes a lot of time to get there. The entire project team can access these measurable photo views and can even make reference annotations on the images. We find virtual access to panoramic images very helpful in showing clients building features that aren’t readily apparent. We can return to views, scroll, measure, and look in. It becomes a great platform for project coordination.”

“Now whenever we have scans done, we always ask for TrueView if it is in the budget. It was equally useful for Furnace Creek Inn in Death Valley. Plus, consulting contractors can access the web portal and see things remotely.”

“We find virtual access to panoramic images very helpful in showing clients building features that aren’t readily apparent. We can return to views, scroll, measure and look in. It becomes a great platform for project coordination.”

As for sharing files, Page & Turnbull uses software from Ideate partner Bluebeam to convert to PDF files, to markup and track who said what and when, and to access, edit and share files across platforms. Dufurrena notes, “There is a CAD version that integrates to handle documents for printing. It also supports a studio session. We can translate drawings to PDF files and everyone can mark up the drawings in a cloud platform. It becomes a really good venue for sharing information and for collaborating.”

“We can manipulate layers generated in AutoCAD, and turn them on and off as needed. The typical way we send drawings back and forth is as a PDF. If we need a physical copy, we can print the PDF.”

## Conclusion

While 3D models are used to depict ideal conditions, 3D scans have a different purpose: to reflect buildings as they actually exist. In historic preservation, level, plumb and perfectly straight are hardly expected. Add remoteness of locations and challenges of accessibility, and the advantages of advanced imaging technologies are only multiplied. The process of 3D modeling is made simpler through the use of point cloud data for referencing. In turn, the point cloud itself can save time, enhance model building and assist with collaboration.

## About Ideate, Inc.

Ideate, Inc. is a leading Autodesk Authorized Developer with 25+ years’ experience in software development. Ideate has offered quality software, training, support, and custom consulting services to the architectural, engineering, and construction (AEC) industries since 1992. Headquartered in San Francisco, California and operating Autodesk Authorized Training Centers (ATCs) in California, Oregon, and Washington, Ideate is recognized as an Autodesk Platinum Partner for Architecture, Engineering, and Construction, Autodesk’s highest level of authorization.

## About Ideate Software

Ideate Software allows Revit users to have unprecedented control over their data and solve persistent problems in Architecture, Engineering, and Construction (AEC) workflows. Ideate Software solutions enable Revit users to save time, increase accuracy, improve project deliverables, and elevate design.

Autodesk, Autodesk Revit, and ATC are registered trademarks of Autodesk, Inc. and/or its subsidiaries and/or affiliates in the USA and/or other countries.

Microsoft Excel is a registered trademark of Microsoft Corporation in the United States and other countries. All other brand names, product names, or trademarks belong to their respective holders.