



Restoring – At Least Virtually – One of England's Greatest Lost Buildings

The worldwide architectural community takes part in 3D modeling of Sir John Soane's legendary Bank of England

BY JANET ADAMS STRONG

(above) The Consol's Transfer Office as built, drawn by Joseph Michael Gandy, with figures added by Antonio van Assen (1799).

It is an experiment that is as exciting as it is unprecedented: Robert A.M. Stern Architects (RAMSA) joined with Hewlett Packard, CASE, NVIDIA, Sir John Soane's Museum in London, Sir John Soane's Museum Foundation in New York, and – significantly – the world at large to recreate, virtually, major portions of the Bank of England, the demolished 18th-century masterwork of one of England's most original architects. Tantamount to bringing an extinct species back to life, the outcome presents the opportunity to experience a lost treasure in all its spatial richness. The project also offers vast potential to advance collaborative architectural practice, scholarship, history, and preservation in ways not yet imagined.

Project Soane was conceived in 2014 when Hewlett Packard (HP) invited RAMSA to put forth one of its projects as the subject of an HP-sponsored renderings competition. RAMSA partner Graham S. Wyatt, AIA, proposed instead the 3D modeling of the Bank of England, followed by a competition for interpretive renderings. Wyatt had come to know the Bank of England as a student in London, where he joined the ranks of architectural cognoscenti inspired by the work of John Soane. Regenerating this mythic building was the realization of a dream.

A master's laboratory

Soane worked on the bank for 45 years (1788–1833) and, gaining the trust of his clients, took greater creative license to study the architecture intensely, tinker with the rules, and devise novel solutions. As the bank grew to finance the Revolutionary and Na-



poleonic Wars, he expanded the building to cover an entire city block, housing a dense labyrinth of banking and trading halls, ceremonial spaces, offices, and even residential quarters. As fireproofing and security were paramount concerns, Soane wrapped the whole in an impenetrable, windowless wall. To illuminate the three-and-a-quarter-acre interior, he introduced courtyards and endlessly inventive techniques for indirect daylighting, both laterally and from above, to create layered, quasi-spiritual spaces in an abstracted form of monumental Classicism that he was developing for the British Empire on the threshold of the industrial era. The Bank of England was Soane's laboratory.

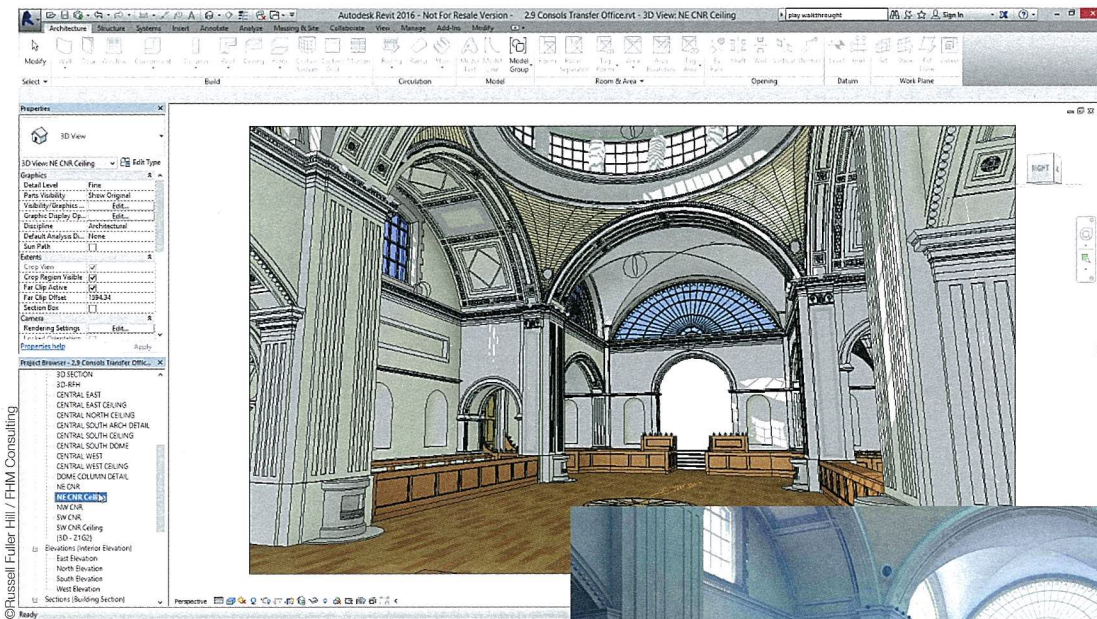
Wyatt had hoped initially to model the entire bank, but uneven documentation at the Soane Museum led to a more realistic focus on two key interiors

and two façades. "I wanted to make sure this didn't end up as an interpretation or 'Soane-lite,' but a faithful representation, truly scholarly in its accuracy," he says. "Doing it properly will set the standard for the future."

To provide renderers the necessary source materials for their visualizations, Wyatt had the innovative, "perhaps crazy" idea of a crowdsourced BIM model based on the historical documentation. Sharing the work with global volunteers made possible what would have been an insurmountable challenge, and opened wide the doors for professional development and collaboration. RAMSA Partner Melissa DelVecchio, AIA, who played a leading role in the project, explained: "We thought Soane's work could inspire a new generation of architects who will now be able to understand it through digital modeling. They could learn about something old in a new way that will help them think about the future."

Wiki-work

CASE, a BIM consultancy that had worked closely with RAMSA on a large residential complex at Yale



(above) Aerial cut-away view of Soane's Bank of England, drawn by Joseph Michael Gandy (1830).

(left and below) Two images of the Consol's Transfer Office showing the same view, one a screenshot taken as the modeler works in Revit, and the other a draft rendering, also in Revit.

(opposite page) Draft renderings in Revit as modelers work to fill in the detailing of the room.

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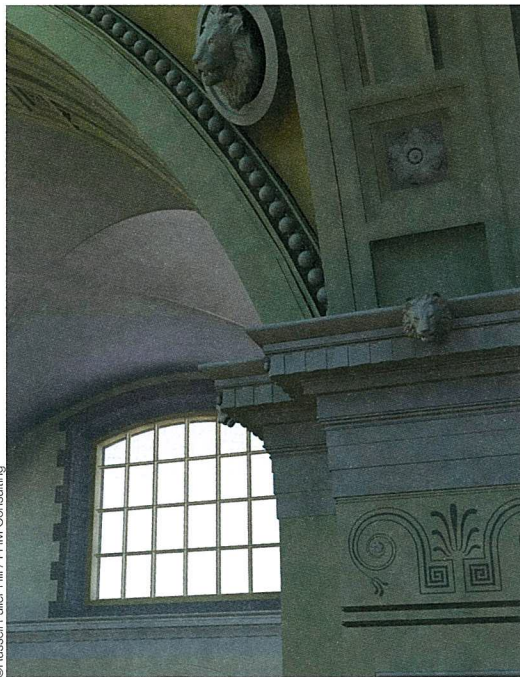
(and is now part of WeWork), helped the architects organize the crowdsourcing effort. Anyone in the world could go to www.ProjectSoane.com, register, and participate in the building of the model. Autodesk 360 was selected as the platform most accessible to most architects. Those less technologically adept took on smaller, simpler portions of the building, while others produced “some of the best modeling I’ve ever seen – incredible stuff,” says Daniel Davis, project manager for CASE, who reviewed the uploaded elements of the model and ensured they came together in a coherent whole. Davis likens the digital structure to Wikipedia since people could download historical documents, model their piece, and then upload it for everyone to see. “No one dictates which part of Wikipedia you should work on. A lot of people work on it collectively, and it becomes a really useful resource. It’s very similar here.”

In total, more than 250 people participated from the U.S., U.K., Australia, Russia, Spain, and other parts of Europe. “We had a lot of faith in Autodesk technology,” explains Sean Young, worldwide manager for product development and AEC at HP, “but we weren’t really sure what to expect from the crowdsourcing. But now it’s proven – the process works. The community is interested in collaborating so, effectively, we have a platform for accomplishing amazing things.”

Upon completion in December, the 3D model will be released to participants in a rendering competition that will launch at Autodesk University. Physically-based real-time rendering technologies from NVIDIA can be used to compute lighting in Soane’s complex environments, accurately calculating the strength and direction of daylight and how it bounces off the bank’s monumental forms and casts shadows. “We use the same technologies now to determine if there’s enough natural light in a proposed interior,” HP’s Young says, “but to use it with architecture from centuries ago is quite amazing.”

The renderings will be judged in May 2016 and displayed in a curated online exhibition. There are also plans to open-source the model for use by academics, researchers, and others. “I think of this project as an interesting prototype,” says Davis of CASE. “Even though architectural practice is global, there are regional differences in how people use software, how they collaborate, and how they’re accustomed to working. We learned a lot about how to set up a project like this and what’s required for success.”

We are on the threshold of a new era of open access information where, working together,



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ARCHITECTS TEAM: Robert A.M. Stern, FAIA, Graham S. Wyatt, AIA, Melissa DelVecchio, AIA, Shaun Frazier, Michael Mesko, David Pearson, Alexandra Gershuny, Arianna Kouri, Peter Morris Dixon
HEWLETT-PACKARD: Sean Young, Ann Sudduth, Aimee Doayne, Ashleigh Obering
NVIDIA: Andrew Rink
CASE: David Fano, Daniel Davis, Darren Lewis
CGARCHITECT: Jeff Mottle
SIR JOHN SOANE’S MUSEUM: Abraham Thomas, Susan Palmer
SIR JOHN SOANE’S MUSEUM FOUNDATION: Thomas A. Kligerman, Chas A. Miller III Paul Aubin, Author of *Renaissance Revit: Creating Classical Architecture with Modern Software*
AUTODESK: Rick Davis, Colin Piper (A360), Alison Geering-Kline (A360)

billions of people and their ideas can be connected and developed. Thomas Kligerman, president of Sir John Soane’s Museum Foundation, reflects on the importance of Project Soane and speculates about its greater potential. “I hope it spreads the word about Soane,” he says. “There’s an enormous amount to learn from him and the way he thought.” Collaborative modeling is “only going to get better as computers become faster and virtual models become more realistic. I hope the crowdsourcing improves Revit, and the programmers make the software more accessible and easier to use. There are so many lost buildings that could be rebuilt virtually and re-experienced.”

Up next, Penn Station? ■

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