

Case Study:
Jonathan Reeves
Architecture



FROM LEGO TOYS TO CAD: AN ARCHITECT

FINDS HIS STRIDE

WITH LANDSCAPE VISUALIZATION



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Ever since he was a boy, RIBA Chartered Architect Jonathan Reeves has sought ways to bring dreams to life. As a child, he enjoyed creating buildings with colorful Lego® sets. Later, this native Brit replaced his toy bricks with CAD software, earning his bachelor and master of architecture degrees from The University of Sheffield and working for commercial, institutional, and residential architecture firms in London. He enhanced his credentials in Sydney, Australia as a CAD visualizer before returning to the southwest of England to launch his own firm, Jonathan Reeves Architecture, which offers a mix of architecture, 3D modeling and visualization, and training services.

Now, he brings clients' dreams to life, helping others model, visualize, and develop their ideas. A typical week can include planning a home remodel, barn conversion, or commercial building; completing architectural surveys and feasibility studies; and collaborating with developers, builders, and other architects. In addition, Reeves teaches architects how to optimize their work through Vectorworks® software, which he also sells. He devotes a lot of instructional time to the rapid adoption of Building Information Modeling (BIM) because the UK government's BIM mandate stipulates that all centrally procured projects must be designed using BIM workflows by 2016. For Reeves, the mandate reinforces what he inherently believes. "I always considered BIM from my perspective as a design architect. It's design-driven. That's why I use BIM. I find it an efficient way to work." Reeves looks forward to seeing more architects use BIM in their workflows. "It's an exciting time," he says, having recently completed his first small development project designed totally using BIM workflows.



Architect Jonathan Reeves recently completed this small development project using a BIM workflow.



Reeves jumped at the chance to employ his 3D visualization skills for the UK television show *Love Your Garden*.

Creating Healing Landscapes for *Love Your Garden*

It's an exciting time indeed for this skilled practitioner of 3D CAD and visualization. And while most of his work relates to the architectural process, he recently adapted these skills, creating animations to complement the landscape designs showcased on the popular UK television show *Love Your Garden*. Hosted by broadcast celebrity and gardening expert Alan Titchmarsh, the show features garden makeovers for people facing difficult health issues.

The show was entering its third season when its director and producer, Phillip Smith, sought to invigorate each episode with 3D visualizations to demonstrate various concepts for the viewing audience. Reeves' knowledge of 3D CAD and advanced renderings made him a perfect partner. "3D graphics hadn't been used on a UK landscaping television show before, so I jumped at the chance to get involved in this ground-breaking work," he says.

The timelines were fast. As soon as the show's team conceived the design and chose materials, Reeves created 3D models of the hardscapes and landscapes and completed the visualizations. Developing a workflow that would carry him through all eight episodes, Reeves began by quickly modeling each profiled family's home in Vectorworks Architect and Vectorworks Landmark to produce a 3D model of each garden design shown in scale with the residence. "Vectorworks is really good at what it does modeling-wise," he says. And while he enjoys working with the program's add-on rendering application, Renderworks®, and completed a series of test renders to perfect each design using it, *Love Your Garden's* production team required the use of Artlantis™ Studio to produce final animations for its viewers. This approach allowed for a stylized sketchiness to be added while taking advantage of the wide range of plant libraries that were available.

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The production company, Spungold TV, required high-definition animations, which meant rendering each frame in HD format. With every animation running about 30-40 seconds and each second running 25 frames, he created approximately 750-1,000 frames per project. When producers requested subsequent design changes, he notes that, “the power and flexibility of Vectorworks software made the process of producing revised models seamless and enjoyable.” He had three to four weeks to produce final animations for the first episode, which aired in June 2013. After that, he had to produce them on a weekly basis. “It was a real juggling act with a lot of late nights,” he recalls. “Despite the chaos, it was a nice opportunity to free myself from some of the restrictions and regulations I typically face in architecture.”

Visualizations Convey Design Intent

A few episodes were particularly dear to Reeves. Episode two, for example, profiled a Cambridge family whose wheelchair-bound son required around-the-clock care. For this project, the show’s designers transformed the family’s neglected garden into a beach-themed oasis. Rotten decking was replaced with a sweeping path enabling wheelchair access to new areas of the backyard. Two huge gravel beds filled with Mediterranean-themed plants brightened the space, and designers revitalized an existing pergola with lush greenery to provide shading. A sound system, sail shade, and outdoor pizza oven completed the design.

For his part, Reeves portrayed paving using hardscape objects and added 3D symbols for patio furniture, benches, and rocks. He also used the Heliodon tool to test lighting levels and shadow coverage at different times throughout the year to determine optimal



Reeves added realistic paving and rocks to the Hereford garden model, complete with a pond and flowers to attract wildlife.

plant placements. And, he says, the Landscape Area tool “proved invaluable as a quick way to visualize the quantity and mix of plants required for various beds.” Reeves also modeled the complex curved forms for this landscape with freeform modeling and integrated site modeling tools. “Vectorworks made this workflow easy,” he says.



Reeves relied on the Heliodon tool in Vectorworks Landmark to test lighting levels and shadow coverage at different times throughout the year to determine optimal plant placements.



Using stepped walls, freeform solids, and flexible NURBS tools to accommodate a sloping landscape with a number of terraces, Reeves modeled a beautiful, gently rolling garden.

The show's next episode moved to South London, where the design team worked to make a small, urban backyard feel larger while providing relaxing spaces for a mom, who suffers from crippling arthritis, and her son, who has sickle-cell anemia. After digging up a cracked concrete patio and tearing down a dilapidated garage in this urban backyard, the team created a larger sense of space by laying out the garden on the diagonal, using level changes and parallel lines to trick the eye, and converting the garage area into a sanctuary in the form of a gazebo for the family's children.

When the show aired, Reeves' animations of his Vectorworks models included complicated stone walls, as well as a pond, the summerhouse, and the plantings. He praises the software's ability to show realistic previews of the plantings that can adjust in terms of height and season. He also detailed the garden's pergola "in record time" using walls, doors, windows, and the Create Roof command available from the advanced BIM tools and commands included in the software.

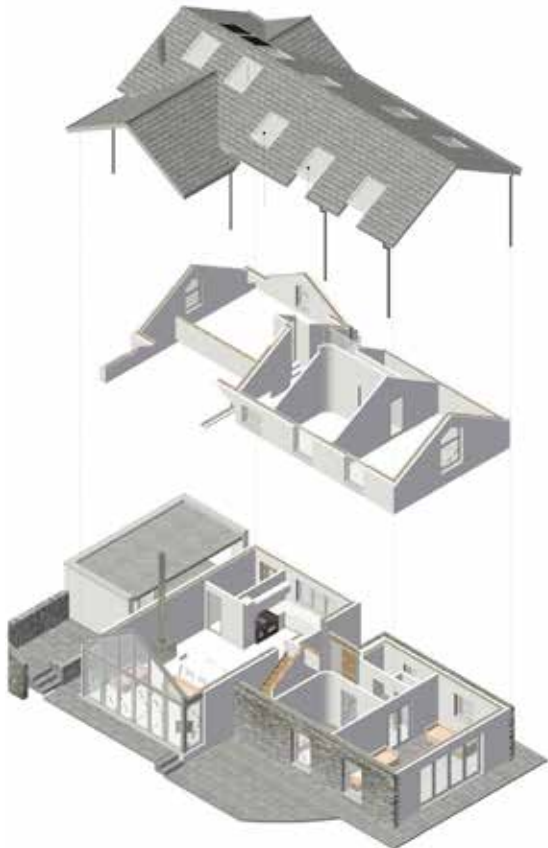
Reeves also enjoyed working on episode six, in which a wheelchair user in Hereford watched as her bare garden, previously dominated by a large wooden viewing platform she couldn't access, was transformed into a vibrant space, complete with a newly dug pond and flowers to attract wildlife. While Reeves initially found it challenging to represent the pond, he successfully modeled the pond's edges with 3D filleting tools and added realistic paving and rocks. Then, with the Repetitive Unit tool, he added a useful fence for the family's chicken coop.

The last episode was filmed in Cumbria and featured the largest and most complicated garden of season three. The profiled family had lost their daughter to cancer and was surprised when Titchmarsh and his crew showed up with an offer to revitalize the yard. The team had their work cut out for them as the awkwardly sloping space led down to a stream, and the yard was filled with damp, shady areas, as well as sunny corners. To create a new landscape, the design centered around a rock garden complete with five tons of stone and 600 Alpine and rock plants. It also included a memorial bench to honor the family's daughter.

Using stepped walls, freeform solids, and flexible NURBS tools to accommodate a sloping landscape with a number of terraces, Reeves modeled a beautiful, gently rolling garden. He tapped "the amazing library of realistic trees and plants in Vectorworks Landmark" and used Renderworks to quickly and effectively present his drawings, creating sheets and viewports, coordinated plans, sections, and 3D views for the production team's approval before outputting the final animation in Artlantis Studio.

A Passion That Endures

Reeves is deeply proud of the work he did for *Love Your Garden* and hopes to be involved when preparations for season four get underway. In the meantime, he's busy teaching others how to adopt BIM workflows with Vectorworks software, and he's working on a cliff-side house in North Devon. "It's an environmentally conscious, low-impact building that's well insulated and includes solar panels and triple-glazed windows," he says.



Reeves also recently moved into a new studio space after working from home for 13 years. At his “Architecture Shop” in town, he enjoys the sense of community and pop-in visitors. And although this change means he no longer shares workspace at home with his young sons, Charlie, Sammy, and Artie, he still proudly shares in their dreams. All three have a tremendous love for playing with the same Lego bricks Reeves enjoyed in his youth and its computerized iteration, Minecraft™. “So maybe that’s the next reinvention for this generation, the next lead-in to architecture,” Reeves says. For now, his boys have a great head start because Reeves already taught them how to play around with Vectorworks software to produce a few of their homework assignments.

Whatever the future holds, Reeves’ passion for the potential of 3D CAD, coupled with a desire to help others visualize and develop their ideas, will endure. As long as the people he’s designing for enjoy and want to spend time in the spaces he creates, the work is always worth it.

Acknowledgements

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