

# SERA ARCHITECTS

## CASE STUDY

Since 1968, SERA Architects, one of the industry's leading architecture firms, has been dedicated to the principles of urban revitalization and sustainable design. Located in Portland, Oregon, SERA was "green" before the term was fashionable, focusing much of their efforts on urban infill, redevelopment, and the reusing of existing structures and materials. Their extensive experience in adaptive re-use and building recycling is what led SERA to become not only a major innovator in sustainable design, but also to provide guidance and expertise in a wide range of environmental issues that extend well beyond green building. For example, SERA's in-house Sustainability Resources Group (SuRG) offers an array of sustainable design services including: LEED consulting, early energy analysis and programming, day lighting design and modeling, efficient lighting design, water efficiency and re-use analysis and calculations, building envelope analysis, and a variety of digital performance analyses. SERA is also involved with several projects that go beyond LEED in pursuit of the Living Building Challenge (LBC). SERA has participated in the development of numerous green building policies, maintaining that, "a 'whole building' design process that applies sound strategies of construction and planning



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will yield long-term economic benefits, healthier communities and environmentally sound solutions."

In keeping with their mantra to remain on the cutting edge of architectural design,

SERA takes advantage of the practice known as Integrated Project Delivery (IPD) which involves early collaboration through building information modeling, (BIM). IPD helps exceed client demands by easing and integrating the collaborative efforts of



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owners, architects, engineers, construction managers, fabricators, and end operators at the earliest possible stages of a project. This increased visibility enables all project team members to stay coordinated, improve accuracy, reduce waste, and make informed decisions earlier in the process, thereby ensuring the project's success.

## The Projects

SERA is currently involved in two IPD projects which perfectly encapsulate what this leading architecture firm is all about. The first is the stimulus funded \$133 million renovation of the Edith Green - Wendall Wyatt Federal Building (EGWW), the federal government's Portland, Oregon flagship building comprised of an eighteen-story office tower, which occupies one full city block and two levels of basement and parking areas. Opened in 1975 and named for two former Oregon congressional members, the building is operated by the U.S. General Services Administration (GSA), the largest landlord in the world.

The second is the Oregon Sustainability Center (OSC), slated to be the world's greenest office building, serving both as a technological model and as a hub for sustainable practices, policy, education, research and entrepreneurship. Located on the edge of the Portland State University campus in downtown Portland, the center will represent the pinnacle of 21st century Oregon sustainability architecture.

## Integrated Project Delivery

The major players involved in any project consist of the principal in charge, who has the ultimate responsibility, the project manager, who oversees the timeline and budget, the project architect, who is the actual designer, and the job captain, the individual in charge of production. Projects at SERA also include a BIM manager to maximize the function of these roles. On both EGWW and OSC, that BIM Manager is Russell Holzinger. An enthusiastic advocate of

Integrated Project Delivery, Holzinger is quick to point out its benefits.

"The old method for building projects consisted of the owner hiring an architect, hiring engineers, hiring a contractor, with everyone working apart, separated by firewalls and lacking shared information," says Holzinger. "But with the new model (Integrated Project Delivery), it's more than just being contractually obligated. Instead, the owner, architect, engineer, and contractor form a type of partnership with a shared goal. We're an open book—each one of us, working together for the benefit of the project."

## The Challenge

One of the other reasons Holzinger admires the IPD approach is that it eliminates waste and mistakes, thereby saving time and money. In addition to the usual problems that can effect a construction project budget, there are also incentives to complete projects on time and sizable penalties if they are not. As job captain, one of Holzinger's core responsibilities is to focus on the technology necessary to complete a project on time and on budget. Closely related to that is his need to identify bottlenecks in the process and provide the necessary solutions, i.e., methodology and tools.

On both EGWW and OSC, Holzinger identified that in order to complete each on time, he would be required to increase the speed of his team's computer workstations which support Autodesk® Revit®. Purpose-built for BIM, Autodesk Revit building design software helps architects and designers capture and analyze early concepts, and then better maintain those designs through documentation and construction. Revit is so crucial to today's architectural designs, that when it comes to assigning the most elite computer workstations at SERA, Holzinger's

criteria is simple: “Whoever runs Revit,” he says, “gets the best computer.”

“Revit is a data driven modeling tool,” he continues. “Instead of drawing pictures, we build a graphic data base with each object in 3D and assign all sorts of information from parameters to costs, to sizes.”

SERA was the first architecture firm in the northwest to abandon CAD and go with Revit, but Holzinger admits that the transition was not easy. “When Revit first arrived, it was barely useable,” he says. “The file formats were too large and a standard 32 bit system simply couldn’t handle it.” Though 64 bit systems offered improvement, Holzinger was not pleased with his present hardware heading into the pair of high-profile, multi-million dollar projects. His team had been using Dell Precision systems, and although they were reliable, they weren’t fast. In fact, many Revit operations were taking as long as 15 minutes to complete. All professional software applications are not created equal, so different applications require different hardware features. In order to maximize the performance of the features and tools found in Revit, the hardware platform must have outstanding processing core speed, not multiple cores. Revit only uses one core at a time, so going with bigger multiple core machines was not a viable solution.

## The Solution

Holzinger’s IT manager, a rendering specialist, had read about a series of record-setting single processor workstations, the 3DBOXX 4850 Series from BOXX Technologies, and suggested a demo trial. Featuring an Intel® Core™ i7 processor, the 4850 Series features a range of available performance level options. A standard six



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core or four core 4850 delivers core speeds up to 3.46 GHz, while the over-clocked and liquid-cooled Extreme edition is the most powerful single processor workstation ever designed (4 GHz). SERA ordered the 4850’s, and after running the benchmarks, Holzinger and company were sold. “Revit took half the time as before,” says Holzinger.

Benchmarks are certainly useful, but the true measure of the 3DBOXX 4850 was found when it was actually pressed into service. EGWW, slated to take two years in its design phase will be completed in August 2010, for a total design time of only nine months. The OSC is ahead of schedule as well. In both instances, Holzinger credits the 3DBOXX 4850 for drastically reducing production time by living up to its reputation as a premier Revit solution. He also credits the systems for improving the morale of those who rely on them. “Revit used to be a pain: tedious and time consuming,” says Holzinger “The 3DBOXX 4850 makes life easier. It gives me

the time to focus on clients and projects, rather than waiting for a computer to catch up.”

He also makes it known that with over fifty 3DBOXX 4850 machines on site and only one 4850 Extreme, the goal is to procure more of the elite model—a decision which makes perfect sense when considering a firm that strives to maintain its position at the forefront of architectural and technological innovation. For Holzinger, the explanation is simple. “SERA is a technical innovator and the 3DBOXX 4850 is our standard,” he says. “That’s why we recommend these systems to everyone.”

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