

# URS – Engineering Design & Construction

## *BOXX rendering solutions for 3D graphics visualization*



### URS – Engineering & Design

*Customer Success Story*

#### Project Team

URS, [www.urscorp.com](http://www.urscorp.com)

BOXX Technologies, [www.boxtech.com](http://www.boxtech.com)

#### Software

Autodesk® Revit® Architecture  
BIM (Building Information Modeling)

#### Computing Solutions

renderBOXX 10400

*Comprised of two computers (nodes)  
with each node containing two quad  
core, or two six core Intel® Xeon® 5600  
series processors*

3DBOXX BOXX 4850 Extreme Workstation

*Six core or quad-core Intel® Core™ i7  
processor*

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“**BOXX Technologies** is a high-performance computing company which focuses on the specific needs and compute intensive requirements of digital content creators.”

*Rick Krause  
President & CEO  
BOXX Technologies*

“A [renderBOXX](#) is a dedicated rendering system specifically designed to deliver outstanding rendering performance for intensive 3D graphics.”

*Tim Lawrence  
Founder and VP of Engineering  
BOXX Technologies*

URS is among the largest global engineering design firms and a leading U.S. federal government contractor providing a comprehensive range of professional planning, design, systems engineering and technical assistance, program and construction management, and operations and maintenance services with over 25,000 employees.

The firm designs large infrastructure projects such as highways, bridges and airports. URS is part of an elite group of firms that is rapidly adopting powerful new tools to maximize their competitiveness (e.g. Autodesk® Revit® Building Information Modeling). Although the construction industry has operated for years with concept sketches and building blueprints, it is now taking a page from the playbook of the automobile and aeronautical industries where sophisticated computer-based design and production tools are the norm.

#### The Challenge: Processing high quality visuals

A wave of new software tools are redefining the way engineering firms can design, plan, communicate, market, and supervise large construction projects. These tools also possess specific hardware requirements that differ from traditional IT systems originally designed for enterprise-type back-end work. URS recognized the benefit of producing high-quality visuals of its designs but did not have the right hardware to make the rendering process [[Click to view rendering video clips<sup>1</sup>](#)] efficient and dependable for its design team.

#### The Solution

In order to improve their process and reduce the time to render their designs, URS investigated several options and ultimately chose BOXX to help build a dedicated render farm featuring renderBOXX, their purpose-built dedicated rendering solution.

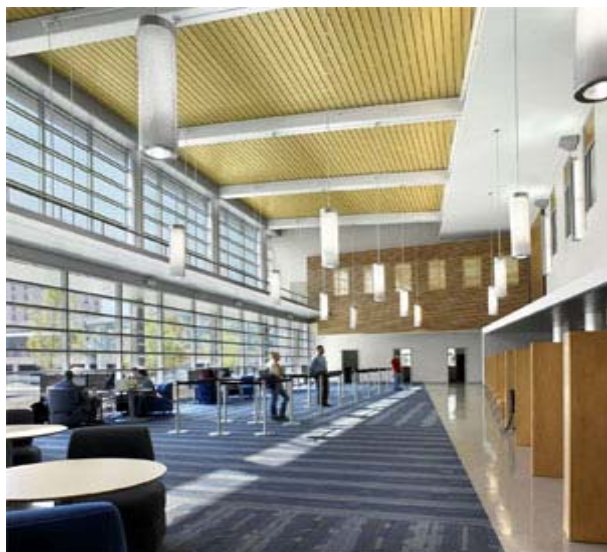


For 2010, BOXX has introduced the renderPRO, a personal desk side rendering option, to their line of professional rendering solutions. The compact renderPRO features Intel Xeon processors in three models: PRO4, PRO8, and PRO12, with model numbers indicating the number of processing cores in each.

BOXX also makes record-setting, purpose built workstations like the [3DBOXX 4850](#) Extreme which are compatible with the renderBOXX product line.

Civil engineering projects have a widespread influence on the location where they are built. They must attempt to reconcile the priorities of many stakeholders: public agencies, government, engineering firms, contractors, various associations, and local communities. That is why accurate and convincing communication of key aspects of the project is so important. Accurate and appealing visuals can play an important role in this respect. This is where a powerful and reliable rendering capability comes in.

Rendering enables the production of highly accurate and appealing visuals of a project, allowing URS to more effectively market its designs to public agencies that fund infrastructure projects. In turn, agencies can build support for projects using both still images and highly realistic animations that allow interested parties to visualize the design. URS can also use the high-quality visuals to better communicate its design concepts to other members of the Building Team, thus accelerating project time lines with better coordination and shorter revision cycles.



## Fast rendering drives many efficiencies for an engineering firm

*“We were not ideally set-up to quickly perform many high-quality renderings and animations”. says Jeff Coleman, Manager of the Creative Imaging Department at URS. “We originally rendered on the team’s workstation during the night, but we found that was not a satisfactory solution”.*

*“The machines did not all have the same architecture, which caused problems. Some of them would break down in the middle of the render. The rendering time was too long, so we could not run many versions of the animation or image we were working on. Some machines were not always available.”*

*“We tried to build our own nodes but the research involved and the labor required to assemble and troubleshoot the systems was not the best use of URS resources or time”.*

## Familiar Obstacles: Why URS chose BOXX solutions for their render farm

URS has a regular purchasing agreement with a different “tier one” computer company for their normal IT needs, but when it came to building their render farm, they could not find the optimal solution.

*“We considered using enterprise servers for rendering but soon realized that they included expensive enterprise-class features that did not add any real value to a render farm. And, in most cases, the enterprise-type servers were twice the price of renderBOXX modules. We had seen BOXX demonstrating the [APEXX](#) superworkstation at SIGGRAPH, and after some research, we chose BOXX because the company had exactly the kind of systems we needed for rendering. We also chose BOXX because the [BOXX] people were knowledgeable about what we do. You spoke animation and that made us confident we would get what we needed.”*



## The renderBOXX experience

*“It impressed us that when the renderBOXX modules arrived they were ready to go right out of the box. There was very little labor involved in deploying them as a render farm; they just slid right into the rack. Since then, they have been running 24/7 at maximum capacity without any issues whatsoever. And they are fast because they have the latest technology in them. We were not expecting that the process would go so easily because in our prior experience we had to troubleshoot many issues, like systems that could not work 100% of the time, which made it difficult to keep the workflow predictable.”*



**renderBOXX**

## Results

***What difference has the renderBOXX made for the creative imaging department at URS?***

*“What the render farm has allowed us to do is make changes- a lot of changes. If we make a 20-second clip of an engineering project, we can now modify it 10 times in a day. Before the render farm, we had to render over night and that interrupts the whole workflow. Now we have 1,000 frames done in 15 minutes. We actually render the same number of hours as we did before, it’s just that now we get to do so many more iterations and work on them right away.*

*The ability to make changes is very important because our renders are not so much about aesthetics as they are about accuracy. What this means is that a fence, for example, has to appear on the image or the animation of the project exactly in the location where it is planned to be built. We have to get it right so that the clip can then be presented to public agencies.*

*All-in-all, the renderBOXX systems have really changed the way we work and have increased both our productivity and the quality of our images.”*

## More Information

To learn more about how BOXX can accelerate your design process, visit

[www.boxxtech.com/solutions/rendering.asp](http://www.boxxtech.com/solutions/rendering.asp)

<sup>1</sup> Rendering video clips:

[www.boxxtech.com/products/RenderBOXX/10300/video.asp](http://www.boxxtech.com/products/RenderBOXX/10300/video.asp)

