

el dorado inc.
(www.eldoradoarchitects.com)
Kansas City, Missouri

Autodesk® 3ds Max® Design
Autodesk® Revit® Architecture

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—Steve Salzer
Project Architect
el dorado architects

Capturing Kansas City Daylight

el dorado uses Autodesk 3ds Max Design, and Autodesk Revit Architecture software for sustainable design of police facilities.



Image courtesy of el dorado inc.

Summary

This is a story in two parts. When el dorado architects, a Kansas City–based architecture and design firm, took on the task of building a new, \$12 million Vehicle Impound Facility, the firm knew it was going to need some help in creating an aesthetically appealing, efficient, and sustainable pair of buildings for approximately 20 acres of impounded automobiles.

“The Kansas City Vehicle Impound Facility is not just an industrial project,” says Dan Maginn, Principal and project architect at el dorado. “The facility also has a very public face and a sizable number of employees. At el dorado, we’re perhaps most interested in working on structures that can be highly functional, but also a good experience for workers, visitors, owners, and so on. We’re also very committed to sustainable design in all the work we do.”

Indeed, the Vehicle Impound Facility achieved a prestigious LEED® Gold rating from the U.S. Green Building Council, thanks in part to daylighting analysis performed by consultant Architectural Energy Corporation in Boulder, Colorado, using el dorado’s building models created in Autodesk® Revit® Architecture building design software.

When the el dorado team saw how daylight analysis could help them revise their designs to help improve building performance, they resolved to do their own daylight analyses on future projects using Autodesk® 3ds Max® Design software. They got their chance with the opportunity to build an automobile forensics center for the Kansas City Police Department, a \$2 million project just 200 yards from the Vehicle Impound Facility.

The Challenges

“Despite its quasi-industrial quality, we approached this project as a significant design challenge,” says Maginn. “While the impound simply holds and processes impounded cars, the forensics center actually performs painstaking analysis on automobiles that have been used in crimes. They are closely examined for evidence, which is then sent to a forensics laboratory in the same building. Because all three buildings are part of the same campus, they had to share a similar architectural language. The functions of the buildings were so different, however, that it represented a big design challenge.”

Having learned the importance of daylighting analysis on the first two buildings, Maginn and his team saw even more need for the forensics center, which required much greater light control for its daily activities.

“While the KCPD wanted a green, sustainable building, their top priority had to be the accuracy of their forensics work,” says Steve Salzer, project architect at el dorado. “They were worried that the facility would be too bright, and made it clear that they could not abide any glare. There were also times when they would have to shut the light down completely to examine evidence. We had to ensure that all the light was green and clean. We learned to fully appreciate the importance of daylight modeling.”

The Solution

“We modeled the police forensics facility using Autodesk Revit Architecture software, and the ability to go straight into Autodesk 3ds Max Design software for very quick daylighting analysis was invaluable,” says Salzer. “We can experiment and test certain building features and technical details much earlier in the process, and the software made it seamless.”

Bringing Revit Architecture and 3ds Max Design together in this manner proved a successful combination, and is one that Maginn looks forward to using on future projects.

“This was the first project that afforded us the ability to work with Revit Architecture, and we are really looking forward to using it on even more complex projects,” he says. “The combination of Revit Architecture and 3ds Max Design enabled us to show our clients the tangible benefits of proper design and building orientation. Instead of saying how cool it will be to have a lot of daylight, we can show them how foot candles and other elements can improve work performance to help retain employees, improve their bottom line, and more.”



Image courtesy of el dorado inc.

The Results

While the completed Vehicle Impound Facility achieved a LEED Gold rating, The still-in-progress forensics center is currently tracking toward a LEED Silver rating. As the project proceeds, Maginn expresses a growing confidence in what the el dorado team can do, thanks in part to Autodesk tools.

“Autodesk software helped us build informative models and run tests on our ideas,” he says. “We were then able to speak knowledgeably with lighting designers and engineers to make sure we used the right features and materials. The process proved to us that our

assumptions were pretty accurate. It was wonderful to have that confidence in our vision, and we conveyed that confidence to the KCPD. It was a great experience.”

Both Maginn and Salzer reserve special credit for the city of Kansas City. “They gave us the chance to show what we can do,” says Salzer. “They were willing to push sustainable design on an industrial project, and we respect them for that. They seem really happy with the results as well.”



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