

INDUSTRIAL — TECHNOLOGY

Effectively use design tech to benefit development

Much can be said about the design technology used within the real estate industry and the overall benefits to the development process.

Working with an integrated design team utilizing the latest technology will help landowners save money and time, improve coordination and collaboration efforts, enhance data and design and support overall project success. Owners can benefit from understanding how design professionals utilize technology throughout the entire project – from concept to construction trailer.

■ **Site selection.** Optimal site selection is critical to the success of any real estate development project.

A technology available to site designers, Bentley's SITEOPS, is an optimizer software that analyzes earthwork components, retaining walls, access points, site and building fit, parking lot layouts and much more. This technology quantifies many aspects of a site and defines a land development cost based on national averages.

One of the main benefits of SITEOPS is very efficiently determining the ideal site for a client's objectives. SITEOPS saves considerable time compared to the iterative method of calculating the same site data. Instead of spending days evaluating the site grading and then manually analyzing the data, a civil engineer using SITEOPS can provide the opti-



Matt Chaiken,
LEED AP BD+C
Principal, Ware
Malcomb,
mchaiken@
waremalcomb.com

mized site analysis in just a few hours.

Partnering with a design firm utilizing 3D site optimization technology will provide quick, accurate information to help with site selection and achieve the land development goals.

■ **Civil engineering design.** During the civil engineering design phase of a project various

aspects of the site are analyzed to determine the best positioning for the structure, parking, detention, circulation, roadways and more.

InfraWorks is a civil engineering design software that adds more perspective to the site design, helping with project feasibility and coordinating civil data with other disciplines. By viewing all consultants' models in a streamlined software, inconsistencies and coordination issues are easily identified – from grading to utility design. In the absence of a technology like InfraWorks, a typical process involves multiple 2D drawing reviews and time-intensive coordination between disciplines. InfraWorks allows grading and utility review to occur in real-time at multiple stages of a project – and takes minutes instead of hours.



Chris Strawn,
PE, MBA
Principal, Ware
Malcomb,
cstrawn@
waremalcomb.com

The power of InfraWorks is highlighted in the Shamrock Foods project. Currently under construction, our team provided civil engineering, architecture and interior design services for this 1 million-square-foot cold storage facility in Aurora. While using InfraWorks, our team noticed an inconsistency in the grading model that wasn't apparent in the initial design – a 4-foot grade lowering was shown below a building entry. The intended use had changed from the initial design as dock doors to an entry at grade. Our civil engineers were able to quickly accommodate the entry grades and associated revisions required for the changes to the utilities and pavement, avoiding delays to the project schedule.

Architectural Design

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■ **Sequencing, field coordination and compliance.** Compared to similar technology, Enscape is far superior in navigation and visualization. The resulting model realistically conveys the architectural design intent in real time.

This technology aids in conveyance coordination, material handling and manufacturing equipment placement. During the design phase of the Shamrock Foods project, approximately 10 miles of conveyance and material handling equipment were placed into the Enscape model to ensure overall facility adaptability and cohesiveness.

The software also helps with sequencing and field coordination prior to installation. Conflicts with equipment penetration coordination and building structural systems can be avoided by viewing the facility in 3D. If a conflict is found after installation, moving a piece of equipment within a 10-mile-long system could severely impact the project schedule. If there are multiple misplaced pieces

of equipment, the delays could be even longer. Understanding and utilizing this technology saves time and money by decreasing change orders, RFIs and costly delays.

With a highly technical project like Shamrock Foods, numerous models were connected within Enscape. The models from the material handling, fire protection, structural, architecture, civil and MEP teams were combined in Enscape. The cohesive Enscape model was used to gain city approvals and demonstrate code compliance. Two-dimensional drawings would not have articulated the design well enough due to the intricate five-level pick module and conveyance system. The improved visualization derived from using Enscape allowed the team to substantiate proper code compliance.

■ **Real-time changes.** Any changes made to the design within the 3D environment can be automatically updated in the Enscape model. If an owner wants a piece of equipment or door relocated, it instantly can be updated to reflect the change.

In a recent project for Kärcher, a 380,000-sf industrial and office headquarters, Enscape was used to gain stakeholder consensus of the design early on through a fully rendered facility and site.

While collaborating with the Kärcher team on the interior office component, Enscape was critically important when finalizing the layout and design for a monumental staircase design. Precise details for the grand stair such as light location, handrail and material selections were shown, edited and approved by the client in real time.

■ **Conclusion.** Understanding what technology to use and when to use it is crucial to efficiency and accuracy of the project process and overall success.

Considering the development objectives, stakeholders and project partners involved is important to determine which technology to utilize during the design process. These considerations will save money, increase speed of delivery, improve collaboration and, ultimately, help achieve development objectives.

Technology in the real estate development industry certainly has evolved over time and will continue evolving at an even faster rate, just like in every other aspect of business. Working with design professionals who understand not just the latest technology, but the right technology for your real estate objectives is key to success. ▲



A rendering and a photo of the finished 380,000-sf industrial and office headquarters for Kärcher, which used Enscape software for finalizing the layout and design of the project, including the design details for a monumental staircase.

Ostermick

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pandemic also is augmenting demographic migration patterns that will favor the Rocky Mountain region and thereby boost the need for more quality, well-located industrial warehouses. Hard data on migration patterns this year is scant but early

indications suggest a "great migration" from denser urban communities to exurban or suburban communities where mass transit is merely an option and suburban low-rise office buildings are plentiful. "Zoom towns" with a higher share of professional and business services jobs that accommodate work-from-home arrangements

will recover faster, and Colorado ranks fourth in shifts from in-person to telework.

Despite the tough recovery ahead, the relative strength of Colorado's economy is evident in the job recovery rate from the March-April losses of 63% compared with 54% at the national level. The availability of jobs was a key fac-

tor driving net in-migration during the last downturn and the consequential industrial boom, and we're setting up for a repeat. With Denver pegged as a top 10 recovery market by Moody's, on top of the new growth trajectory for the industrial expansion, Denver's industrial real estate market is poised for much more than a moment. ▲

Morris

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the \$1.1 billion average of the prior two years through three quarters, but the past two years represent the strongest on record for investment in the Denver metro industrial mar-

ket. Investment sale activity should comfortably surpass the \$1 billion mark once again in 2020 and, with several large portfolios for sale around the metro, could increase substantially before year's end.

"Appetite for Denver industrial

real estate is picking up right where it left off prior to the pandemic," said Cushman's Will Strong. "We are rolling out new opportunities that we expect to price as or more aggressively than the first quarter, as well as tracking investment

sales that will close with cap rates reminiscent of early 2020, and with more compression in some instances."

This article is a result of collaboration across the Cushman & Wakefield Denver Industrial Group. ▲