

TECHNOLOGY SOLUTIONS  
CYBERSECURITY IN CONSTRUCTION

ENABLING TECHNOLOGIES  
AVS AND INFRASTRUCTURE

COMMERCIAL

# CONSTRUCTECH

Where Construction and Technology Converge

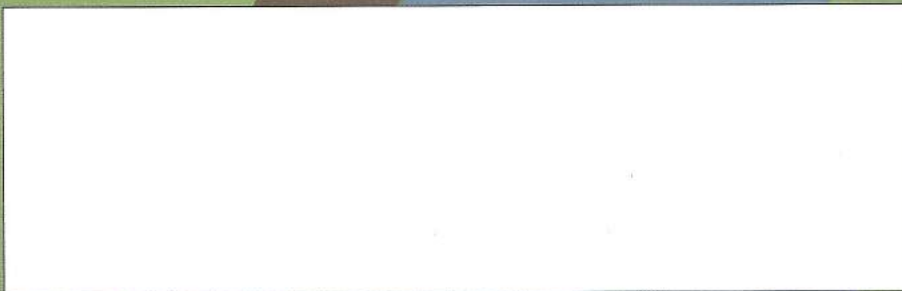
March/April 2016 Volume 19 Number 3

TOP PRODUCTS 2016

## DISCOVER NEXT-GEN TECHNOLOGY

LEVERAGE NEW OPPORTUNITIES  
USING THE LATEST SOLUTIONS.

[constructech.com](http://constructech.com)



# Unmanned Construction



**Applications, benefits, and capacities of drones in the construction industry; the opportunities are there today.**

**U**ASs (unmanned aerial systems), more commonly known by the general public as drones, are beginning to revolutionize the way we conduct daily business operations in the construction industry. They will someday become as commonplace as manned aircraft, trucks, and automobiles. Drones will be used in hundreds—if not thousands—of construction applications in the United States, and around the planet, under water, and even in space. I agree with Google's, [www.google.com](http://www.google.com), Mountain View, Calif., top rated futurist, Thomas Frey of the DaVinci Institute, [www.davinciinstitute.com](http://www.davinciinstitute.com), Westminister, Colo., who says "...as we go down this path, (192 Future Uses for Flying Drones) we'll also be unleashing millions of new startups that are destined to drive the economy for decades, if not centuries, to come."

No commercial application has greater potential for improving the effectiveness, efficiency, and safety of operations than in the construction market. In fact, drones are already being used around the world to support construction operations. What construction foreman would not want to have a "God's-eye-view" of his construction site and workers in realtime? With drones, this is not only possible, but possible in a very cost-effective solution: DVS (drone video systems). Traditionally,



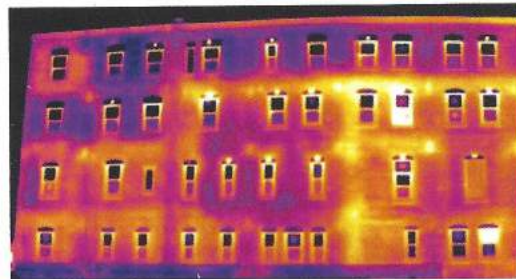
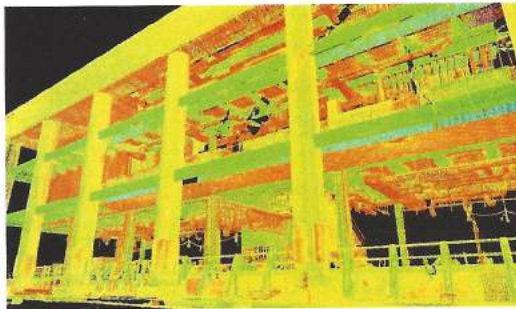
construction managers rely on expensive manned aircraft or helicopters to capture these breathtaking views of their jobsites. Even then, they would normally have to wait minutes, if not hours, for the aircraft to land to get the pictures and video back from the photographer. Today, inexpensive drone equipment combined with a state-of-the-art DVS can deliver these images and videos to the customer in realtime to anywhere in the world. Stampede Presentation Products Inc., [www.stampededglobal.com](http://www.stampededglobal.com), Amherst, N.Y., North America's largest distributor of drone-based video systems provides leading-edge expertise in this new technology area. The typical DVS is comprised of the drone hardware, drone sensors, video conferencing software, and pro-AV monitors for viewing. Every DVS application can potentially be different. The DVS solution for first responders may be completely different than the DVS solution used by the construction industry or the search and rescue industry. Their expert integration and consultation services are needed to put together the optimum DVS solution for the customer.

Stampede has partnered with unmanned systems experts at Unmanned Vehicle University, [www.uvxuniversity.com](http://www.uvxuniversity.com), Phoenix, Ariz., to ensure the end users of this DVS technology will get the right education and training combined with expert integration and consultation services to ensure they purchase the right DVS for their specific application. And it is not just the building construction industry that can benefit from drones and DVS solutions. Virtually every part of the industry where visual inspections were traditionally made can be done by drones to include 3D

site surveying and mapping, building project design—layout—and construction, infrastructure inspection and repair, mining construction operations, and many others. The opportunities are real and growing, limited only by our imagination combined with the proper education, training, and experience to safely take advantage of this new technology. Over the next five to 15 years visionary entrepreneurs and technologists like Stampede and Unmanned Vehicle University will continue to develop innovative ways for drones to contribute to the construction industry as well as many other industries, making their operations more safe, efficient, and effective.

Japan is one country getting out in front. It currently has an aging population to support the traditional construction industry, so it has begun to adopt new technologies to help build the infrastructures of the future. One Japanese-based multinational machinery maker, Komatsu, [www.komatsuamerica.com](http://www.komatsuamerica.com), Rolling Meadows, Ill., launched a new service called Smart Construction, targeted at helping fill Japan's void of a fit young workforce with cutting-edge information and communication technologies. The service uses a digital platform called KomConnect that connects machinery and workers to the cloud to improve overall efficiency, artificial intelligence-assisted control for operating machinery, and, of course, drones.

Partnering with Skycatch, [www.skycatch.com](http://www.skycatch.com), San Francisco, Calif., a drone service provider, Komatsu is integrating drones into its "smart construction" venture. The Skycatch drones are deployed to conduct surveys and 3D models of the construction site, providing live interactive maps of the jobsite. According to Skycatch CEO Christian Sanz, "the potential of drones in construction is becoming too great to ignore. These maps allow construction customers to impose overlays of plans onto what has actually been built, calculate volumetric measurements, and make annotations to share with coworkers."



With DVS, it's all about choosing the right drones, sensors, and video conferencing software to achieve an optimum solution for the customer. There are many drones to choose from (rotary quad, hex, octocopter, fixed wing, etc.) and many sensors to choose from (electro-optical, infrared, hyper-spectral, LiDAR, etc.). This is why it is so important to talk to the experts about your specific requirements, which will drive the complete DVS solution for your specific mission.

In the early 1960s when the James Bond movie "Goldfinger" first hit the big screen and the public was amazed at the power of the giant industrial laser that was about to slice James Bond in half, nobody watching the movie thought to themselves, "gee, someday these lasers will be used for surveying construction sights and roads and will do it more accurately and safely than we do it today, let alone will be used to operate on our human eyes to give us 20/20 vision." That is about where our understanding of the potential uses of drone technology and the DVS is today. We are only beginning to scratch the surface of what these amazing technologies will do for us.

Five to 15 years from now drone and DVS solutions will be revolutionizing the way we do the construction business today in ways we can't even imagine now. The real key to taking advantage of this technology is getting the right education and training coupled with the right systems integrators who have the expertise to ensure a DVS solution will do a great job. ●

---

John Minor, provost, Unmanned Vehicle University, [www.uxvuniversity.com](http://www.uxvuniversity.com), Phoenix, Ariz., has nearly 40 years of experience in the aerospace industry.