



Augmented Reality Onsite

INDUSTRY INFLUENCES: TOP 3 CURRENT TECHNOLOGIES INFLUENCING CONSTRUCTION

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The top three technologies influencing construction this year made waves not only in the headlines, but in applications on Construction sites around the world. By using technology as a tool to execute functions faster and more efficiently, these three technologies are responsible for change in the way construction is performed both now, and in the future. What made the list? Let’s take a look at the top three technologies influencing construction today:

Augmented Reality

Augmented Reality (AR), not to be confused with Virtual Reality, is a technology that superimposes images that are laid over the user’s real-world via a headset device. Over the past two years, AR became increasingly popular within the construction industry due to its application uses both on the field and off. Among ARs many uses, some of its most beneficial offerings include instant onsite notifications delivered directly to users, real-time project information display, asset information, instant health reports for machinery, safety alerts, data visualization, design phase assistance and more.

Most notably this year, the construction industry has seen two game changers for AR: **DAQRI Smart Helmet** and **Microsoft HoloLens**.

The DAQRI Smart Helmet, with the use of high-resolution 3D depth cameras, 360 degree navigation cameras, and high-tech augmented reality sensors, gives its users digitally displayed and distributed information about the site. The company’s wearable gadget delivers vital site information to all users that allow them to be immersed, informationally, within a site unlike any other technology. The product is very real, and the company used numerous amounts of beta testers throughout the past two years to perfect it. DAQRI’s enormous efforts are looking to make workers safer, more productive, and significantly reduce errors.

Also this year, Microsoft HoloLens hit the commercial market. Midway through 2016, construction/ software giants AECOM and Trimble announced a partnership for the world’s first application use of HoloLens. HoloLens creates high-definition holograms and inserts them directly into the user’s reality (you can see how it works [here](#) and learn more about it). Trimble is helping to advance this technology into the construction industry by connecting 3D engineering models into the actual HoloLens device. Users at AECOM are able to view 3D models of projects of different complexities and sizes on (for example) an ordinary table. They can zoom in and out of the model and can see what it would actually be like to move through the structure itself before it’s built.

Drones

Drones, also known as Unmanned Aerial Vehicles (UAVs), had one of its most influential years this 2016. What’s the reason for their popularity and influential position in the industry? Drones are mostly being used worldwide for their ability to survey all kinds of things from construction sites to bridges to agricultural fields to individual homes both quickly and efficiently. Drones can cover large amounts of aerial space, and, when equipped with the right cameras, can spot incredibly small infrastructural problems, track worksite progress, and track important patterns. In the construction industry in specific, drones have been able to reduce inspection times, increase worker safety, and increase project speed.

Drones biggest accomplishments this year in construction included two very big things: the FAA’s **law changing decision**, and the **new working class of drones** that flooded project sites.

August 29th, 2016 marked the day when the Federal Aviation Administration (FAA) made it legal for commercial drones to fly. What that meant for construction was that any site could now fly drones legally for site inspections, worksite progress tracking, etc.. And fly they did. Since the induction of the new law, and even before it, 2016 brought on an onslaught of drone workers that appeared on construction sites all throughout the United States and the world.

The likes of Turner Construction Company, the U. S. Department of Transportation, the American Association of State Highway and Transportation Officials, and more are using drones onsite. Drones are successfully working on inspecting bridges (Michigan Department of Transportation Project), tracking project progress and inspections on sports stadiums (Turner Construction), surveying roofs in England (Lacy Roofing Project), and identifying hazardous roadway conditions (Woolpert Project). And that is just the start. With the new FAA law only in place now for three short months, 2017 will surely continue to be influenced by the power of drones.

3D Printing

3D Printing made some major headway this year, taking strides in what everyone thought was the impossible. The technology gained popularity a couple years ago because of its ability to “print” objects. By “print” we mean a nozzle with the ability to extrude a partially liquified substance (like concrete) and perform pre-defined, computer programmed instructions. The construction industry became obsessed with the technology’s potential because of its promise for faster construction time, and lower material and employee cost.

Most notably this year, the industry saw several achievements in the field of 3D printing: the world’s first **3D printed office building**, a house **printed onsite in 45 days**, a 3D printing **scholastic program**, and so much more.

Dubai and Chinese 3D printing company, Winsun, completed construction on a 2,600 square foot office building in July that was 3D printed from top to bottom, office furniture included. It was reported that labor costs were cut by 50%. In China, Beijing-based Chinese Construction company **HuaShang Tengda** successfully 3D printed a 4,305 square foot house onsite in 45 days, defying the typical build time of a structure of that size (3-4 month standard build time). London’s **Architectural Association** introduced a 3D printing program which let students work directly with robotic fabrication.

Throughout 2016, 3D printing also popped up in China, again, with **3D printed restrooms** that are already open to the public. We even saw the world’s largest printer, Big Delta, which already made plans with the Italian government to **3D print an entire village** using sustainable materials.