



ONLINE SPECIAL THE NEXT CHAPTER IN CONSTRUCTION TECHNOLOGY

Is the construction industry ripe for technological disruption?

A McKinsey report in Oct 2020 predicted a big shakeout across the construction industry over the next decade, with companies adopting technologies and methodologies from the manufacturing world. Indeed, the bulk of short- and long-term pandemic-driven construction industry issues will be solved with technology.

[Read more >](#)

| ADVANCED CONSTRUCTION



10 Construction Technology Trends Impacting the Industry. By UK Connect

The adaptation of digital construction technology to innovate the traditional processes will leave an extreme and lasting impact on the entire industry, 2021 and beyond. With the additional options to coordinate virtually, project managers can streamline their project to expand building preferences and upgrade their strategies. Furthermore, this would also help them outpace their competitors in the industry and increase their market base worldwide

[Read more >](#)



Spiders, Caterpillars, Dragonflies Inspire Construction Material Research. By Gigi Wood

The US National Science Foundation awarded grants to three universities to develop new technologies and materials to be used in biomanufacturing, cyber manufacturing and eco-manufacturing. The research is funded by \$40 million in grants from the National Science Foundation (NSF), which is leading an initiative it calls “the future of manufacturing.” The scientist is looking closely at some of nature’s strongest and lightest building blocks—protein-based polymers. Think of delicate spider webs, dragonfly wings, and silk threads spun by caterpillars.

[Read more >](#)



The Power of Cloud Robotics. By Tanya M. Anandan

Cloud technologies have transformed the way people live and perform daily tasks, and now, cloud technology has come to robotics. The emerging trend is already being implemented in robotics on the move in logistics, healthcare, mining, agriculture, construction and more, and is enabling supervised autonomy and machine learning. Cloud robotics allows for higher levels of human-robot interaction and learning, and is contributing to the digital transformation of companies.

[Read more >](#)

| GREEN BUILDING TECHNOLOGY



The route to a sustainable future.
By Alex Steffen

With a culture of consumerism spreading across the world, our environmental footprint is becoming so large that it isn't sustainable. As more people move into our cities, Alex Steffen encourages us to use what we already have and improve it by implementing environmentally friendly buildings, transport and increasing the extent to which we share.

[Read more >](#)



China opens first 'Green Expressways' using recycled tires.
By The People's Government of Ji'an

Guangji Expressway, one of China's eight model green road projects, opened to traffic on 22 January 2020. This is China's first environment-friendly expressway to start operation.

The research paper focuses on the highway construction, demonstration road of green highway and demonstration road of quality engineering in Jiangxi Province. It mainly describes the construction idea, realization way, characteristics, highlights and practical experience of demonstration project of Guangji green highway construction.

[Read more >](#)



Are we ready for Timber Building.
By Norman Day

Inviting aesthetics and occupant wellbeing are a major feature of mass timber construction. But it's not just about doing good while looking good. The materials used to construct these buildings - engineered woods like cross-laminated timber (CLT) and glue-laminated timber (glulam) - provide the strength of structural steel "at a fraction of the weight.

While greater sustainability and lower costs have helped usher in this wooden construction boom, policy initiatives are also playing a big role. For instance, height restrictions on timber buildings.

[Read more >](#)

| DIGITALISATION



Innovation 2050 - A Digital Future for the Infrastructure Industry. By Balfour Beatty

The construction site of 2050 will be human-free. Robots will work in teams to build complex structures using dynamic new materials. Elements of the build will self-assemble. Drones flying overhead will scan the site constantly, inspecting the work and using the data collected to predict and solve problems before they arise, sending instructions to robotic cranes and diggers and automated builders with no need for human involvement.

The role of the human overseer will be to remotely manage multiple projects simultaneously, accessing 3D and 4D visuals and data from the on-site machines, ensuring the build is proceeding to specification. The very few people accessing the site itself will wear robotically enhanced exoskeletons and will use neural-control technology to move and control machinery and other robots on site.

[Read more >](#)



The UK Government's Launch of The Construction Playbook. By Jessica Smith

The UK government published the [Construction Playbook](#) in Dec 2020. The Construction Playbook is designed to transform the way in which UK assess, procure and deliver public works projects and programmes. It introduces key policy reforms and guidance for central government departments and their arms length bodies and sets out what is expected from industry.

For example, the government will incentivise industry to innovate by setting clear and appropriate outcome-based contract specifications, and we will support industry to invest by providing greater certainty of demand with longer term contracting across portfolios.

Most importantly, the Construction Playbook will also support in developing a consistent and mutually beneficial relationship with industry, and contract management which will deliver continuous improvement over time.

[Read more >](#)



The applications of BIM to construction site safety. By Rose Morrison

Getting a bird's-eye view of site safety with BIM - BIM platforms are also incorporating tools and features built specifically to improve safety on the construction site. Advanced safety modeling features can let building designers know of potential safety issues that may arise during construction. For example, a BIM tool may detect material handling sites that are too close to fire hydrants or structures. The same tool might also automatically note slopes that have insufficient landing areas for project equipment or other issues, like erosion and soil stability concerns.

As BIM tech becomes smarter and incorporates Cloud technology, developers are also starting to include features that help supervisors and workers coordinate onsite. Some tools, for example, offer real-time visual updates on where all other BIM users are on the construction site – helping supervisors track and coordinate workers.

[Read more >](#)

| Videos



Billions of Dollars saved by the US Federal Government with RPA.

This 3D-printed house is about to change the world.

This big drone can wash windows of high altitude buildings.

| UPCOMING EVENTS & WEBINARS

29 Jan **Showcases of on IDD Computational BIM applications from Design to Fabrication** [Register here](#)

The **Computational BIM Community of Practice (CoP)** in Singapore is growing naturally due to the common interest in Computational BIM. There are bi-monthly sharing of information and experiences by the industry, periodical topic-focused discussions, hands-on workshops supported by the Institutes of Higher Learning (IHL) and solution providers. There are interests among the community members to network, collaborate and explore co-developed Research and Innovation (R&I) Projects for commercialised solutions.

Currently, the community is mainly comprised of industry practitioners in the built environment sector, experts from Institutes of Higher Learnings, Tech. firms, solution providers and public agencies. There are developers, consultants, contractors, specialists, fabricators, manufacturers, suppliers, professors, researchers, students, software vendors, software solution providers, officers from public agencies and individuals who are interested in Computational BIM.

Time: 2:55pm to 5.30pm

Presenter: Mr Chris Ho, Singapore Polytechnic

Want to contribute for Tech Insights?

We welcome written contributions from all who share a keen interest in advanced construction, green building technology, and digital innovation. Email us at Stanley_Tan@bca.gov.sg