

5 advances in construction technology

■ As the region's biggest construction event kicks off, GN Focus highlights some exciting innovations to look out for

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Special to GN Focus

The revival of infrastructure and real estate spending in the Middle East has brought the construction industry to the fore again. As new projects are launched across the region to meet the growing demand, which is

arising out of a strengthening economy, governments are spending heavily.

The region witnessed annual GDP growth of 3.7 per cent last year, according to the International Monetary Fund (IMF). And it forecasts a 4.1 per cent GDP growth for this year. The economy is set to be boosted further by a series of major events planned for the next few

years. With Qatar hosting the 2022 Fifa World Cup and Dubai getting ready for Expo 2020, the GCC expects to witness a sustained boom in the building and development sector as each nation involved takes the opportunity to showcase itself to the world.

However, those opportunities also come with challenges, notably in improving the

standard and quality of these buildings. The scale of the projects involved, coupled with the region's progressive mindset, is a good platform to try out new technologies. In particular, efforts are being made to construct faster, greener and smarter buildings – but at lower costs. Here are five technologies that offer benefits for developers and users alike.

Fire-proof cladding



Against the backdrop of a number of fires in Sharjah and Dubai over the past few years, fire safety has become an important issue in the region. To address this, Alubond USA, a firm that deals with fire-resistant metal composites, has come up with a fire-resistant exterior cladding panel that is suitable for varied applications and heights.

"The new product we will be introducing is the Alubond A2 fire-proof panel, which is currently being installed at the Folkart Towers in Turkey [pictured]. It is relatively new in the UAE and we would like to establish this product in this market," says Adnan Ul Mulik, Vice-Chairman, Alubond USA.

The panel consists of a strong fire-resistant core with a high percentage of minerals such as Aluminum Trihydrate, manufactured in a continuous co-extrusion process. The Alubond USA A2 has been certified A2/B1 under the Euro standards for Fire Classification and successfully tested for core fire resistance. "As per ASTM, D648 deflection temperature of 211 °C has been achieved, which is one of the highest fire-rating standards in the world," Mulik says.

The panels are equipped with ABTI, open groove fixing systems, high-density Rockwool insulation slabs and are preceded by a water-based fire-rated mineral coating for concrete walls. The entire cladding system has been certified under ASTM E 119 level certification. It has the highest fire-resistant rating (T rating) of 102 minutes.

Though the company has worked on several projects in the UAE, including on the Burj Khalifa and JW Marriott Marquis, its new product will further enhance the safety standards of the country.



Adnan Ul Mulik
Alubond USA

Mobile apps



Malaysia-based Innovacia has come up with an innovative mobile app that makes site reporting easier by simplifying the data input and submission processes. Site Report (pictured) replaces the traditional report form, which has to be prepared daily by site supervisors in architectural, civil, structural, mechanical and electrical fields. The app allows users to add photos, list materials, manpower and machinery on-site, provide estimated costs, identify locations and other info. The report can then be emailed.

According to the company, the result is a greener, faster and more efficient process. A typical weekly or monthly report compiled in the traditional form will use lots of paper, and it is also tedious. "The functions that we offer in the mobile app are unique as they provide location detection and costing. We also offer other innovative functions in the report," says Shahrul Nizar Shaari, Director, Innovacia.

"It [the app] is available on Google Play for the global market, and its latest version was released a couple of weeks ago," he says, adding that the majority of the brand's customers are from the UK, US and India.

"Besides the generic Site Report mobile app, we also offer customised versions such as incorporating extra tools and company logos," he adds.

The company is also highlighting its first green engineering app, the Ammonia Removal Calculator, which can quickly calculate the required addition of chemicals to reduce the ammonia content in discharges, before it is released into rivers and other water resources. "This app is suitable for water supply operators, researchers, farmers, factories, plantations, local authorities and other enforcement agencies," says Shaari.



Shahrul Nizar Shaari
Innovacia

Eco panels



Eco panels are better than traditional building technologies because they can be used as the main construction material for a building's structure, from external walls to internal slabs and dividers.

The constructs made with these panels are better insulated, cheaper and quicker to put together.

"What makes our technology unique is that it is the only new building material that reduces the overall cost of an insulated concrete wall by 40 per cent, while increasing all its values – be it insulation, structural or sound," says Victor Morozov, Managing Partner, Eco Panel Group, an exhibitor at The Big 5.

This system is simple to work with and much faster than traditional construction processes. It produces panels that are specific to architectural plans, therefore, once brought to the job site, they can be put together quickly. "A typical single-storey house of about 120 square metres can be finished in a week. Therefore, contractors will be able to work with a fewer skilled employees at a site without losing quality," he adds.

The technology, which has been successfully used in the US and Europe, will be soon be introduced to the Middle East for the first time. "We have chosen to exhibit at The Big 5 because it is a great opportunity to introduce our patented new technology to the world, specifically to the Middle East market," he says.

Morozov says desert areas such as the Middle East face a high fluctuation in temperatures, from highs of 50 °C to single-digit lows. "Our system addresses these issues by allowing the producer to control the insulation value. This could be done through increasing both the width of the earnings per share or Neopor and increasing its density," he says.



Victor Morozov
Eco Panel Group

Safer floors



Temporary Floor Protection has developed a system called TecDura (pictured) that protects precast concrete staircases and high-quality finished concrete floors during construction phases. "[This anti-slip] mat is more robust and easier to use than traditional forms of protection such as corrugated plastic, bubble wrap and plywood to stop dirt, grit, grime and liquids from damaging finishes," says James Galloway, Managing Director, Temporary Floor Protection.

It is also suitable for multiple surfaces including concrete, marble, granite, wood, vinyl, terrazzo, ceramic, porcelain and glass. "TecDura Stickymat was originally focused on health and safety requirements for the concrete construction sector, with a top coat that is anti-slip, and LPS1207 certified – this mat is fire- and spark-proof."

Furthermore, the top coat has a Pendulum Test Value of 52 when wet. "This means staff have an improved working environment, as most accidents on construction sites are a result of slips, trips and falls.

"The adhesive has been engineered to leave no residue when it's removed, which means the substrate is left in pristine condition," he adds.

The product is also ultra violet, mould and bacteria resistant, which has made it a good fit for medical and hospital projects. "Our product can also withstand extreme temperatures – from -40 °C to +140 °C.

"The mat is already being used in the UK, US and Australia. But the technology will be introduced to the Middle East's and the UAE's construction sector soon. We feel that our product would suit the high-end and progressive nature of the Middle Eastern market and we would be honoured to work with the contractors in this region," says Galloway.



James Galloway
Temporary Floor Protection

Smart cities



Pictures: Supplied

Smart cities are increasingly in focus in the age of urbanisation. According to a recent UN estimate, more than 226 million people – nearly 62 per cent of the total population – are expected to live in Mena by 2020, creating greater stress on the existing infrastructure and natural resources. To handle this situation, city planners are increasingly realising the need to plan ahead and come up with solutions that not only solve environmental challenges and drive energy efficiency but also redefines living and working models that also improve safety and security.

Cisco's Smart+Connected City (S+CC) solutions look to achieve that by using the network as the platform to transform physical communities to connected communities that run on networked information enabling economic, social, and environmental sustainability. "We fully support the Dubai Smart City vision, and are working closely with the Dubai and UAE governments in leveraging our ecosystem of partners and our S+CC solutions, and transforming the region's construction sector," says Rabih Dabboussi, General Manager, Cisco UAE.

The range of solutions improve how cities are designed, built, and run – covering construction, lighting, waste management, parking, traffic, safety, and security sectors.

Since 2009, Cisco S+CC solutions have benefited more than 90 global Smart City projects, from the design phase, through to the construction and operation phases.

The system is currently being deployed across several regional projects, including Dubai Design District (pictured), Energy City Qatar in Lusail City and the King Abdullah Economic City in Saudi Arabia. ■



Rabih Dabboussi
Cisco UAE