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► **Raising the ramparts** Following the outbreak of COVID-19, Chinese authorities were facing a steep rise in the number of patients needing urgent care. To address the issue, they built an entire hospital in just 10 days. Andy Kane examines the key risks, as he lifts a lid on the construction Page 30

► **New dimensions** Working from home was BAU for many, long before COVID-19, but, as Deborah O’Riordan writes, the unprecedented scale of reaction and government intervention in this pandemic creates an unprecedented human challenge Page 32

COVID-19 Focus



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A little over a week after construction started, the two-storey, 366,000 sq-ft Huoshenshan Hospital in Wuhan began accepting its first patients. Three days later, China opened a second hospital in the city – the 1,600-bed Leishenshan. The two hospitals – part of China’s battle with the coronavirus – were built in record time using prefabricated modules. This impressive feat of design, engineering and construction, is exceptional, but prefabricated and modular forms of construction are becoming much more prevalent, with important implications for risk and insurance.

Faster, safer and more flexible

Prefabrication can be as simple as manufacturing sections of walls or roofing, right up to complete modules that come with services plumbed in. These modules can be stacked together like Lego blocks to build multi-storey apartments and offices – two 44-storey tower blocks currently under constructed in Croydon, London, are set to become the world’s tallest modular buildings. At the

Raising the ramparts

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extreme, 3D printing technology is being developed to manufacture entire homes – a Russian company recently completed the largest 3D printed building yet.

Few buildings can be built as quickly and on such a scale as the two hospitals in China. However, the use of prefabricated and modular construction methods is expected to accelerate in coming years.

In the UK, prefabricated buildings are thought to be essential for meeting current government housebuilding targets and last year Japanese modular building pioneer Sekisui House agreed a deal with the government to build modular homes in the UK.

Prefabricated buildings are a

faster and less resource intensive way to meet growing demand for new buildings.

Crucially, much of the construction work is carried out offsite. This means potentially less disruption for local communities and a safer environment for workers. The Huoshenshan hospital took just 10 days to build. Using traditional methods, a similar building could take many months, if not years to construct.

Building resilience

The two hospitals in Wuhan are a great example of how prefabricated and modular buildings can increase resilience. There are obvious applications in emergency response, such as field hospitals, temporary shelters or rebuilding quickly following a natural disaster, such as floods or major storms.

Modular buildings could also increase the flexibility of the construction industry, and therefore its resilience and ability to respond to the needs of society.

Changing risk profile

The trend towards prefabrication and modular building will have big implications for the construction industry’s risk profile.

Significantly, it has the potential to de-risk the onsite construction process, transferring activities to a safer and more controlled factory



environment. Construction sites can be hazardous places to work, but with prefabrication the time spent onsite can be greatly reduced, as can the number of workers.

However, much of the risk will shift to manufacturers, while prefabrication could increase the risk of supply chain disruption. A fire or flood at a factory, or damage to modules during transportation, could result in long delays onsite. Modular buildings also typically require more heavy lifting. With more cranes comes a higher wind exposure, which could mean a greater number of days lost onsite to bad weather.

Fire is another concern. The design, installation and testing issues seen with some types of external cladding are a red flag for potential risks of modern construction. Where modules are finished or assembled onsite, there is a risk that fire protection could be compromised, while the potential for voids inside prefabricated walls could enable fire to spread.

Design risk

Prefabrication and modular construction could increase design risk. New designs and construction techniques have caused problems in the past, especially where developments have been rushed to meet demand for more homes.

The post-war boom in non-traditional building and the government-subsidised prefabricated homes of the 1960s and 1970s, for example, experienced well-documented failings and defects.

Design flaws in prefabricated buildings would likely pose a systemic problem that could affect far more buildings than traditional bespoke developments.

Recent experience has also shown durability issues with new modular



systems. Buildings initially perform well, but later suffer issues with connections between modules and weather-proofing. The Oxley Woods prefabricated development in Milton Keynes, for example, won awards for innovation, but later experienced a catalogue of problems related to water ingress and damp.

Insurers will want to see that systems have been properly tested against field conditions, such as environmental testing, computer modelling and full-scale tests, including fire. Underwriters will want comfort that systems meet the intent and requirements of building regulations, and not simply particular aspects of the approved documents. In particular, insurers will want to understand how access will be gained to remedy defects and whether voids introduced into modules, or onsite activities and DIY, could negatively impact fire performance.

Quality control is likely to be an important factor in the success of new modular builds. Robust control processes in a factory environment could raise quality standards, but

rigorous monitoring and verification of materials, workmanship and testing in the supply chain will be critical. Experienced management could also be essential, especially where skilled onsite trades are replaced by semi- or unskilled factory workers. The development of detailed process specifications for the installation of modular elements on site, as well as the training and monitoring of the workforce carrying out these activities, will be critical.

Insurance

The growing use of non-traditional construction methods like modular buildings will have important implications for insurance. Policy wordings will need to reflect changes in risks, such as the increase in offsite construction and transport exposures, to ensure that insurance responds. Risk engineering will also need to adapt to offsite construction and the proto-type nature of new materials and methods.

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While many employers have embraced the benefits of agile working, few have experienced an entirely remote workforce. The same is true for most employees too who may be used to short stints at home but are wholly unaccustomed to extended, unbroken periods of remote working.

COVID-19 is changing the situation for many companies, forcing workers into potentially prolonged periods of isolation. The potential impact on mental health is significant, but there are steps that both employers and employees can take to minimise its effects.

EMPLOYERS

Regular communication is key

Employees perform better when they are engaged and motivated. Places of

New dimensions

Working from home was BAU for many, long before COVID-19, but, as Deborah O’Riordan writes, the unprecedented scale of reaction and government intervention in this pandemic creates an unprecedented human challenge

work tend to be stimulating, with lots going on. When working remotely, communication can often feel less frequent and the home environment less invigorating. It is advisable therefore for employers to increase formal and informal communication.

Communication methods should be mixed up – a video or telephone call is more interactive than an email and helps break up the monotony of working from an inbox. Video calls

also allow the opportunity for face to face interaction and enable teams to talk collectively. Using instant messaging platforms can help change the tone and tempo of responses and may be a more favoured communication medium for some.

Teamwork keeps people engaged

It’s worth considering whether some tasks should be completed as a team instead of individually. Collective team participation helps team cohesion and keeps people engaged. The benefits of teams working collectively will likely outweigh any short-term negative effects of increased task completion time. Just because employees are working from home does not mean they have to feel like lone workers.

Technology and IT equipment

Employers must consider that IT equipment may limit productivity in some way eg. home broadband may be slower and laptops with small screens can be a challenge for those used to working on large or multiple monitors.

Mental health and well-being take priority

For some employees remote working might be more challenging. During a period of transition, it is good practice to check in with employees regularly to see how they are feeling



and coping. For some companies this may already be part of their culture and working practice but for others, it may require a change in approach which may initially be met with scepticism and suspicion by employees.

Employers should remind employees of mental health services available to them and, if possible, re-run any mental health, well-being and resilience training courses. It is also important to remind employees that it's acceptable and encouraged to report problems, this should be reinforced regularly by people leaders. Some Employee Assistance Programmes (EAPs) offer proactive counselling, should it be required.

EMPLOYEES

When used to the hustle and bustle of the work environment, extended remote working may come as a real shock to the system for employees, particularly those who

▶ Helplines

If employees are struggling at home and feel they cannot tell their line manager or colleagues, there are many confidential and free helplines out there that can help, including

Mind – <https://www.mind.org.uk/helplines/>

Samaritans – <https://www.samaritans.org/how-we-can-help/contact-samaritan/>

live somewhat isolated lives outside of the workplace already. It is critical that workers continue to feel connected to colleagues and exercise the right discipline at home. They should:

Stick to normal working hours

Without the structure of commuting to and from the workplace, the working day can creep, with no clear

“Collective team participation helps team cohesion and keeps people engaged”

‘clocking off’ point at the end of the day. The result is employees never really switch off and risk burning out quickly.

Take regular breaks

Employees need to be disciplined also around taking breaks, whether it is as simple as going to get a drink or stepping outside to get some fresh air. According to government guidelines, even those who are self-isolating should take regular exercise outside, just ensuring they avoid crowded places and keep a good distance between themselves and others.

Regular breaks are particularly important from an ergonomic perspective also. Typically, home desks are less adaptable than office desks and unlikely to have been assessed by postural experts. Movement and light stretching every 30 minutes is recommended.

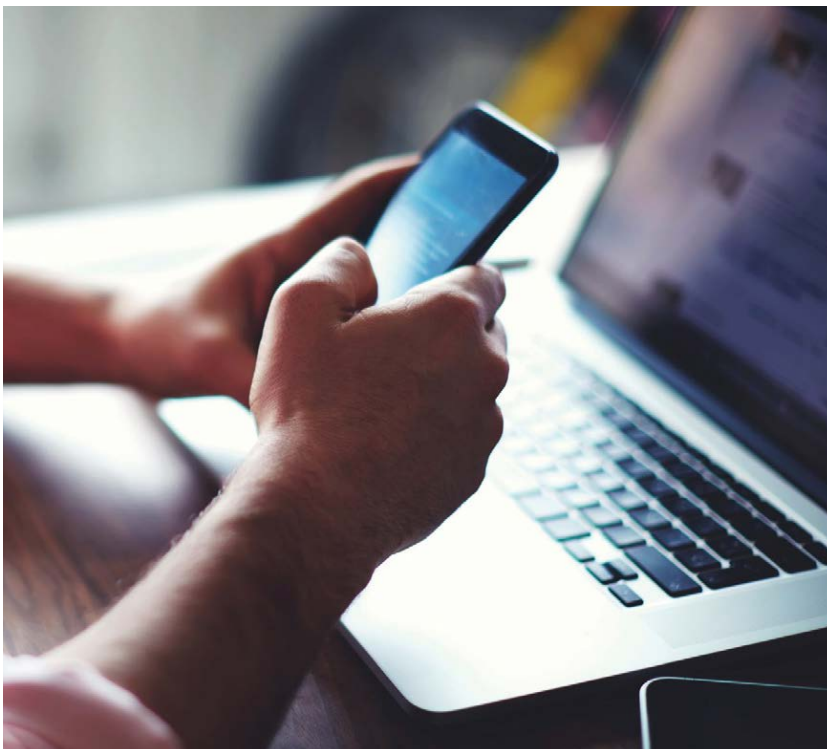
Eat healthily

Maintain a healthy diet to avoid the sluggish feeling of being at home. Constant grazing can often be a downside of remote working. If it is a difficult habit to break, at least try to keep snacks healthy.

Keep in touch

One of the ways to combat loneliness during prolonged isolation is to set up regular video calls with teammates. If employees are struggling at home either mentally or physically, they should let their colleagues, line manager or mental health first aider know at the earliest opportunity.

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