



Casualty Risk Trends 2018

Construction industry

Digital technologies are increasingly influencing the construction industry and thereby reshaping the insurers' risk landscape. Novel building materials and mega projects are also influencing construction industry practices. It remains to be seen how an industry normally slow in adopting such technological changes will embrace these new challenges.



Trend

Casualty relevance

1 • Smart construction

Construction processes, methods and materials are making increasing use of elements of digital technology. Building information management (BIM) is the digitalisation of the construction planning and execution process and promises to simplify coordination between not only design team disciplines, but also between design and construction teams. Other digital and emerging construction technology includes the use of drones or 3D scanners to monitor excavation work, and embedding sensors in building materials to monitor their integrity. As is typical of prototype technology, these innovations can generate as yet unknown risks, while cyber vulnerabilities can lead to data disruption or loss. Major systemic design errors can also result from reliance on technology. It is unclear whether the risks or benefits such as better quality control of these technologies will prevail.



2 • Combustible exterior cladding

Combustible exterior cladding are facade elements that when used on high-rise buildings and accidentally ignited have the potential to generate fires that spread very rapidly. The Grenfell Tower fire in the UK and the Address Hotel fire in Dubai are two recent examples. Although such fires typically affect property lines of business (LoB), they may create a second wave of claims under financial or casualty LoB. Professional indemnity for architects & engineers may be triggered if the facade design fails to prevent the fire from spreading. Contractors can also incur liability for installing cladding that fails to meet regulatory requirements, while coverage for expensive repair work can be sought under warranty covers.



3 • Novel building materials

Innovation combined with the need for energy-efficient buildings has created a wealth of novel building materials. Examples include self-healing concrete, lighter and more efficient insulation and self-cleaning surfaces. In the absence of long-term performance experience with these materials, the potential for defects (eg water leakage) or shorter service life is higher than expected. These issues can generate product liability losses for building material manufacturers and construction defect losses for contractors. These materials may require new installation techniques, thereby creating new challenges for contractors or builders, while some of them may come with the promise of accelerating the construction process – a benefit if this proves to be the case, but a cause of project disruption if not.



4 • Mega Projects

Construction projects are becoming ever larger and more complex, with mega projects often having very long project durations, sometimes more than ten years. These long durations make accurate time scheduling very difficult and may be accompanied by changes in construction technologies that are hard to predict and factor into the planning. Virtual teams can span multiple time zones and supply chains can stretch around the world, making communication and coordination among project participants extremely challenging. Regulatory requirements are also forever changing, making it difficult for international construction teams to keep up with local regulations during long projects.



What can insureds do to minimise these risks?

- Architects and engineers should adapt their traditional design and construction processes, and seek advice from trained and experienced professionals on new technologies.
- Have risk management practices in place and plan for unexpected risks rather than neglect them.

What is important to bear in mind when insuring these risks?

- Ensure familiarity with the various smart construction technologies and an understanding of the additional risks and opportunities involved.
- Understand risks and opportunities of building information modeling (BIM) and ensure all project participants have sufficient BIM experience.
- Be aware that cyber risks should be covered by specific policies and not absorbed by conventional insurance products.

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- Facade designers and contractors of high-rise buildings need to implement and adhere to evolving building standards.
 - Perform fire tests on full-scale or intermediate-scale facades, rather than just on single building materials.

- Verify that the facade designers of high-rise buildings have sufficient project experience in the country in question and are familiar with the building material norms and regulations.
- Ensure that non-combustible building materials are declared and that facade design details such as chimney effects or missing fire barriers are verified.
- Verify that the actual construction process has checks in place to ensure that the design materials selected are used consistently and not replaced by cheaper alternatives.

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- Building material manufacturers should make sure that contractors and sub-contractors have access to new installation and maintenance procedures and material behavior details.
 - Sufficiently test novel building materials to ensure their long-term performance and resistivity.

- Be aware of the serial loss potential of novel building materials and consider their long-tail nature and accumulation potential in underwriting.
- Make sure that mock-ups or proof of long-term behaviour are checked for single projects using prototype-like building materials. If such large-scale tests are not available, material behaviour can be partially simulated in short endurance tests that simulate various degrees of environmental stress.

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- Ensure cost and quality controls, as these are more essential than ever in mega projects.
 - Ensure preparedness for uncertainties and unexpected events, large numbers of change orders and for managing and adapting to tight costs, labour and time schedules.
 - Assign the most experienced people to the project risk management of mega projects.

- Ensure that insurance costing of mega projects takes time and cost overruns (common, especially on large transportation infrastructure projects such as railways or roads) into account. This situation has not improved over time.
 - In the case of single projects, verify whether project participants have the respective experience and whether project risk management is in place.
 - Verify that time schedules are not dominated by non-negotiable deadlines.
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