Charles Taylor ADJUSTING

THE SHORT TERM OF CONSTRUCTION

By Bill Clarke, Senior Engineering Loss Adjuster, Charles Taylor Adjusting

Cyclones, earthquakes and other natural disasters can cause damage on a massive scale. Buildings in high risk areas are designed to resist an 'acceptable' level of force – with a safety margin built in. But what about temporary buildings? Should structures designed for short term use be built to the standards to resist a one in a hundred year event? And what happens if a temporary structure – built to withstand only a low level of force is damaged in a massive storm or earthquake. Insurers need to know how to respond to claims for losses from natural disasters for temporary structures. Bill Clarke, Senior Engineering Adjuster, Charles Taylor Adjusting considers how loss adjusters help insurers to respond to claims following damage to temporary structures in high risk areas

Engineering in all forms, shares a common theme with insurance. Both are based on the probability of an event happening. A building can be designed for virtually any load, however, as the design loads increase so does the cost, so there is a happy medium somewhere.

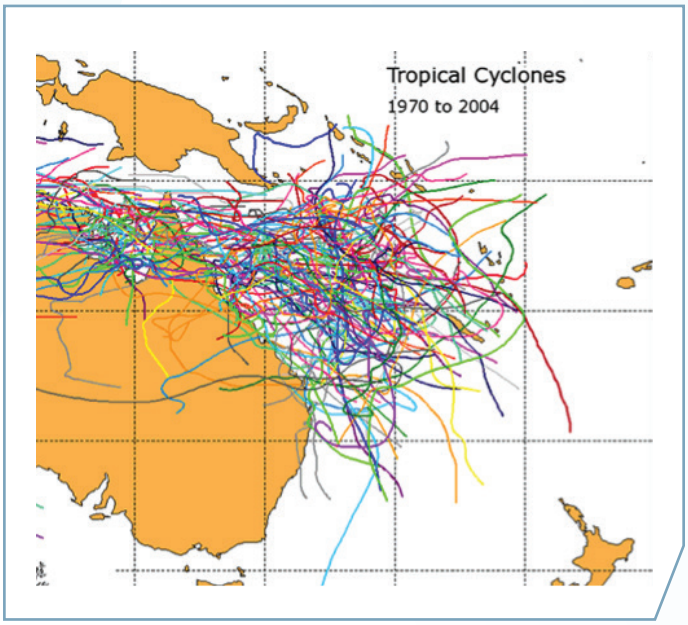
Design limitations: Whilst a specific load is adopted in the design approach; that is not to say that the selected load will never be exceeded. There is a risk that any particular load will be exceeded and it must be decided the level of risk that is acceptable. In the field of property and construction insurance, often in the context of a claim, the design and its basis can be drawn into question. How did this damage happen and why is it so extensive? The ratings for natural risks such as cyclones and earthquake for example are important in the basis of design. Add to that the purpose of the building – has it been designed to last a century, or just six weeks? Its design tolerances and insurance requirements will vary accordingly.

Expert engineers: Fundamentally, Insurers take on certain risks and require the construction designs to meet certain industry standards, codes and that the designers apply a professional engineering approach. For these reasons, Charles Taylor Adjusting (CTA) specifically hires engineers from industry and trains them in adjusting such that they are able to assess construction losses. This balance of necessary

engineering and insurance backgrounds assists in the identification of flaws or deviations in the work that could be relevant to Insurers accepting the risk or the extent to which policy exclusions may apply.
In order to shed light onto the above issues, it is useful to consider how the natural risks of cyclones and earthquakes can be variable and affect projects.

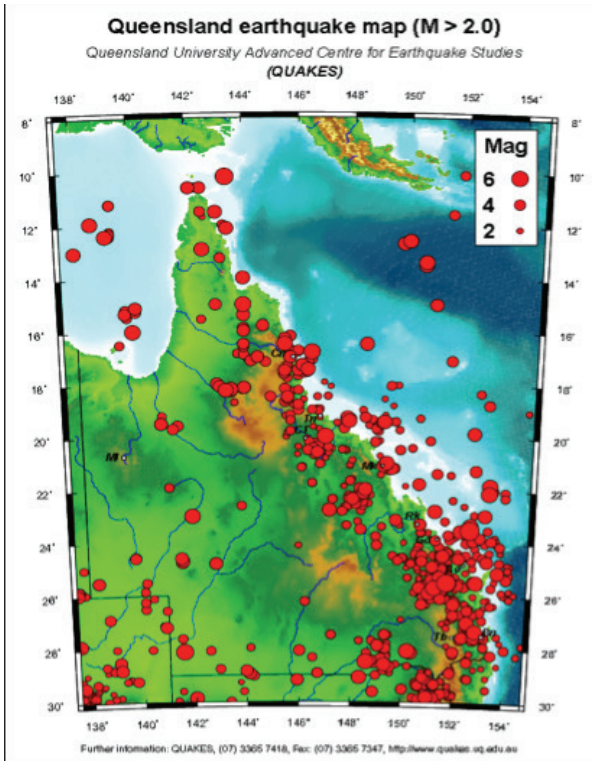
Risk of cyclones: For example, the risk of a cyclone striking Townsville is very high but for one to strike Brisbane, the risk is much lower. Therefore the design wind speed for Townsville is much higher than for Brisbane.

Townsville



Design loads are based on the risk of an event happening. The map above shows the cyclones around Queensland since 1970 and seems to indicate that a cyclone could hit Brisbane. In fact, with the increase in extreme weather events one could postulate that it is only a matter of time before one does. So why then is the design wind speed in Brisbane so low? The answer lies in the acceptance of risk. Cyclones do not occur in Brisbane very often and historically are weaker than in north Queensland. So based on historical data, the likelihood of a cyclone occurring is low, but not zero.

Earthquake resilience: Considering earthquakes recorded in Queensland since 1930, whilst they are small, there is clearly an earthquake risk in Queensland.



In all engineering design, the operating loads or actions are determined and a risk factor is applied. The structure is then designed to have a resistance to withstand that force with a further safety factor applied.

In building design, the magnitude of the loads depends on a number of factors including the importance of the building, its location, its projected life and its use. A structure designed to be in use a few weeks has a completely different set of load criteria to one designed to last 50 or 100 years. A probability factor is then applied to those loads to increase them further. The ultimate or failure strength of the building is designed for those loads with an allowance for an additional safety factor.

Probability risk: This basic approach of probability of an event occurring is not restricted to building design but is adopted in all engineering design for buildings, machines, electronics etc. because there are mechanical and electrical loads in all engineering projects.

The acceptable risk for each load (e.g. earthquake, wind, crowds, electrical, water etc.) is identified by governmental bodies and they are then set out in the Australian Standards to be adopted by the design engineers. The government, through the Australian Building Codes Board, specifies the accepted risk for each scenario which is then incorporated into Australian Standards.

So, how does this fit in with insurance claims? What do the community and Insurers expect when a failure and damage occurs even though the design engineer adopted the recommendations within the Australian Standards?

Short-term structures: When a structure has a very short life, the probability of being exposed to extreme loads is much lower than for a structure that will have a life of 50 years or more. Marquees for parties have a life of a couple of days. Site offices are often in place for only a few months or more. Therefore, the design loads for a marquee are much lower than an office building with a life of 100 years. This also translates into the capacity of what is being designed. The risk of a pipe that is to be in place for a few months being exposed to a 1 in 100 year storm is extremely low, but not zero.

How then are matters considered from an insurance point of view when a "normal" event occurs that exceeds the design of short term construction? It is fairly clear from a material damage point of view, however, what approach is to be adopted concerning construction liability?

Example 1

Short-term stormwater surge protection

Consider an inner city development that requires modification to stormwater piping. The underground system may have been designed for a 1 in 100 year storm but the development is scheduled to take six months to build. Construction is to occur during the dry period of the year and therefore the standards may "require" the temporary stormwater pipe to be able to cater for a 1 in 1 year storm. If a 1 in 2 year storm occurs, water may back up in the system and result in damage to adjoining retailer property. How would a liability claim be handled if it resulted in water entering offices or other properties? Retailers would lodge claims against the builder for loss of property and profits.

The design engineer has met the requirements of the code and provided a pipe based on those design guidelines. The retailers enjoyed quiet occupation of the premises prior to the commencement of construction in the knowledge that the storm water system was capable of catering for very large storms.

The engineer has designed the temporary pipe in accordance with the guidelines set out in the standard and the developer has also incurred expenses to meet the requirements of the code established by the government. Nonetheless, those actions were insufficient to avoid damage and loss to retailers.

There are several obvious questions here:

- Is there negligence on the part of the engineer or builder?
- Should the engineer and builder have recognised the proximity of the retailers and therefore installed a temporary pipe the same size as the existing
- What is the insurance industry expected to cover from the viewpoint of the general public

CTA has been involved in matters similar to the above and our approach in determining 'answers' to the above includes:

1. Full review of the engineering basis of design
2. Contract review
3. Specific utilisation of experts to investigate root cause i.e. we issue discrete scopes of work to consultants such that they are used cost effectively and will provide a clear determination that can be considered in line with the attaching policy wording
4. Early discussions with the Insured regarding practical mitigation measures to reduce the overall loss.
5. Detailed review of the contemplated repair scope in accordance with the policy basis of settlement

Example 2 –

temporary camps resilience to extreme weather

In 2008 Cyclone George struck the Pilbara coast in Western Australia. This CAT 5 cyclone moved south and inland crossing over an expansive Iron Ore construction project. This project included temporary camps for the works, the location of which was adjacent to the change in cyclone zone as established by Australian Standards. The camps were extensively damaged and yet they were said to be correctly rated.

CTA instigated a detailed investigation in to the root cause of the damage and through this work it was established that workmanship and design had 'issues'. Indeed this work had a material impact on the extent of policy cover afforded to the Insured and to this end Insurers' use of a suitable engineering adjuster such as CTA was invaluable.

Insurers accept varying risks when choosing to insure properties. Their willingness to accept risk will depend to a greater or lesser extent on the purpose of the structure, its location, exposure to risk and its expected lifetime. When an extreme weather event or other natural catastrophe occurs the role of the loss adjuster, as a technical expert, is to understand these variables, assess whether the structure has been designed and constructed to withstand the forces to which it has been exposed such that the extent of Policy response can be determined. The technical analysis undertaken by the Adjuster needs to be compared to the insurance wording to ensure that both insurer and insured benefits from a balanced and fair settlement.

Why Charles Taylor Adjusting?

Charles Taylor Adjusting has the experience to investigate these types of claims and has been appointed to many in the past. CTA employs engineering loss adjusters who have worked on construction sites where they gained valuable practical experience. This provides our adjusters a special insight to allow an in-depth understanding of the matter and then to be able to report in concise language that sets out the circumstances in a logical manner that will allow insurers to properly understand the nuances of the claim and thereby reach a conclusion.

CTA is a specialist engineering adjusting company that can provide unparalleled service in difficult claims. We are pleased to offer our services in these very complex matters.

Bill Clarke
Senior Engineering Loss Adjuster
+61 7 3839 9999
bill.clarke@ctplc.com

Andrew Hodkinson
Regional Head – Australia and New Zealand / Senior Resources Adjuster
+61 8 9321 2022
andrew.hodkinson@ctplc.com