

Construction Liability – Christchurch Rebuild – Underwriting Issues

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VERO LIABILITY PRESENTATION

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Good morning! I've been asked to talk to you around what unusual or different challenges an underwriter may face in considering risks associated with the Christchurch rebuild. Firstly, may I comment on what a positive thing a "rebuild" represents for construction underwriting. Over the past 18 months, many of the risks we have seen are for deconstruction, and each time we consider these, we realise what has been lost, and what used to be. Not cheerful underwriting.

Now as we are starting to see requests for reconstruction rebuild, we get a sense of moving forward and regeneration, with a new vision for a rebuilt Christchurch. It's a unique situation, a period of rebuilding and construction works on this scale. In considering these risks, which will only gain in volume over the next few years, it's a good idea to review and consider the factors we as construction liability underwriters should be mindful of. These factors are both internal and external – to our own organisations, to the customers and to the works itself.

By "construction liability" I am referring to predominately Public Liability and Professional Indemnity cover over construction works, arranged either on a blanket/annual basis, or a "project specific" basis, and which in the case of "project specific" policies can cover all parties associated with the works from the owner/principal through to the main contractor/consultant and their sub-contractors and sub-consultants.

Firstly, since I'm speaking to an insurance audience it is probably logical to start by addressing factors which could be described as "internal to insurance" As we know everyone will have a different attitude to risk, influenced by their company's treaty arrangements, portfolio brief and, not least, an underwriter's "gut feel". But the Christchurch scenario brings its own particular risk "overlay" whereby traditional considerations of exposures and risk transfer solutions may not quite fit the bill in any particular case.

One likely factor will be the greater incidence of "order of insurance" dilemmas. Underwriters have always had the potential to have a number of liability policies exposed to the same works, either through insuring a number of contractors/consultants, or by insuring the works through different parties – this now has the potential to become more commonplace as we undergo a period of concentrated rebuild activity in the Christchurch area. Note – the existence of more than one policy will not serve to increase the payout, but who goes first or who contributes may come into question, and if the loss is more than the insurance available under one policy, other policies which may cover the risk can come into play.

One example of this situation is where a principal-arranged General Liability cover is arranged covering all parties, but other annual General Liability covers which may also apply to the works for the various contractors may also be in place.

It's not always feasible for the smaller contracts, but on larger single contracts "project specific" policies are very practical. These policies, arranged by either the principal or the main contractor/consultant often have a "primary insurance" clause in place, putting them in front of other policies and can cover all tiers / parties involved in the works – the principal, the main contractor and the sub-contractors. It's worthwhile to stop and consider the order of how you intend any particular policy to apply, as the chances of an underwriter covering multiple insureds involved in the same works is almost certain to be more prevalent as the rebuild gains momentum

Another factor is considering risk assessment and developing risk profiles. As well as the much-talked-about shortage of skilled workers to reconstruct Christchurch, we also have a climate of increased design innovation, obligation or regulation regarding the rebuild, and underwriters will quickly have to come to terms with the inherent environmental challenges (primarily geotechnical) associated with the greater Christchurch project. Additionally, the rebuild offers the construction sector an opportunity to utilise new or new-to-NZ methodologies in either remediation or in the reconstruction phase using new materials and design, which creates yet another new frontier for liability underwriters.

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Underwriters may also see changes in claims trends which come to the fore either because they are occurring more frequently due to the concentration of repair/construction activity, or are a result of the unique situation we are facing in a large scale rebuild.

As an example of the frequency type claims, you could expect to see greater numbers of trades-related repair claims, even the simple “nuisance” issues such as damage to a fixed carpet as a result of repainting walls. It sounds straightforward enough, but we encounter the usually vexed question of the extent of indemnification: should the carpet be cleaned, repaired or replaced, with the challenges of matching replacement carpet, and if the same carpet can be sourced each batch colour is slightly different? As a liability underwriter, one main likely source of this claim is recovery under subrogation by the house and contents insurer who has already paid to repair or replace the damaged carpet, their own approach to carpet replacement will have a bearing on the amount they claim.

The less usual claims we could expect to see are those arising out of the sheer scale of the rebuild – usually we don’t see a large concentration of damaged buildings in the same street. An error in the address or location of the building to be demolished or repaired could lead to claims arising out of work or even demolition undertaken on the wrong building, or reliance on a survey report which was carried out at the wrong address.

Beyond these more specific coverage and claims issues there are wider matters which will impact on the behaviour of our market as we respond to the wider community forging its “new world order” in Christchurch

These external changes come both from changes which may be affecting the clients’ requirements and from physical factors affecting the works themselves.

Looking first at purchasing approach changes and the developments influencing the client’s approach to purchasing construction liability cover:

- We are seeing more stringent requirements from principals demonstrating their increased awareness of risk. This sees greater vigilance in ensuring their contractors/consultants have adequate and appropriate insurance in place before they commence work. Many contractors who have previously not purchased insurance before are now obliged to take cover to gain rebuild work. Principals are also facing increased excess levels on their Property or Contract Works insurance, and this spurs them to take a closer look at what recourse they have in the event of loss/damage caused by their contractors during a rebuild.
- We also are aware of an Increased engagement and awareness of insurance issues amongst the general public - insurance has gone in Christchurch from being a “necessary evil” quickly arranged then forgotten to being seen as a vital requirement which is carefully scrutinised.
- Solvency Issues - recent high-profile events in the construction industry have highlighted the risk of a contractor becoming insolvent during the works period, with the principal facing having to re-purchase insurance for the works or have the replacement contractors take over the covers. The most obvious outcome of this is that property owners and developers will increasingly seek “principal controlled” insurance, where they purchase the insurance and ensure this is kept in place for all participants for the duration of the contract works and defects liability period and for run-off cover.
- This approach would also eliminate the principals’ chore of monitoring ongoing Insurance currency of parties to a project – as well as establishing the existence of sub-contractor or sub-consultant insurance. Should the project extend over several years, it necessitates ensuring that all covers are current for the build and defects period required.
- The issues surrounding sub-contractors’ insurances can also be taken into account when underwriting a risk which does not extend to cover all sub-contractors/consultants, and where the covers are potential sources of recovery - provided the covers stay in currency, and there are no changes to the sub-contractors or consultants part way through the risk! Another point worthy of note for the underwriter who receives a

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certificate of insurance as proof of subcontractor’s insurance – it may be relevant to seek clarification around relevant extensions to covers such as vibration and removal of support, damage to underground property, demolition cover – are these covers sublimited, or possibly even taken out?

More external factors to consider: the following factors affect the works themselves or are present due to the location/nature/type of works. Not all of these will affect every risk, but they are worth considering as many of them will be background features of a rebuild.

- Workforce – very much in the public eye at the moment
- Materials – what materials will be used, and where will they be sourced?
- Regulation – at both a central and local government level
- Design – will the rebuild require a higher level of design or any unusual design features?
- Environment – what are the ground conditions?
- New materials or technology – are any of these being used in the rebuild?

Workforce

Current estimates for the Christchurch rebuild based on an estimated 10,000 rebuilt houses and repairs to a further 105,500 homes, then a further commercial rebuild over 15 years put the additional workforce requirement at an additional 10-15,000 workers by the time of peak reconstruction in the fourth quarter of 2014. The current shortage is skilled workers based in the region.

Construction companies are in competition for skilled and experienced workers, which will only become more pronounced as the rebuild gathers pace. A nationwide trade recruitment drive is underway, but trainees going through the courses won’t be fully trained or available in the short-medium term, and for some occupations local availability won’t meet peak demand. Employers are also seeking alternative sources for skilled workers, such as recruiting overseas

Challenges arising from this skills shortage (apart from immigration, worker welfare, housing and travel requirements) may include:

- upskilling workers who are new to construction, maintaining the quality of workmanship, upskilling migrant workers who may not be familiar with New Zealand standards, or with the English language.
- some smaller businesses may not be prepared for growth associated with the rebuild – such as business practices related to employing more than one or two staff members, employment relations practices, health and safety and training requirements
- shortage of skilled workers leads to competition between employers with resultant turnover and instability of key workforce as workers change jobs for higher wages, which could lead to breaks in continuity part way through a contract

Hiring criteria – some larger companies require their sub-contractors/consultants to undergo a vetting process before they can undertake work for them, when considering these risks it’s worth finding out more about the criteria sub-contractors/consultants go through to achieve “accreditation”. When considering a smaller company, have they advised any changes to staffing numbers over the past 12 months which may signal rapid growth or coming rapid growth in the company? Should the numbers indicate a number of new hires, especially in skilled construction areas, are they considering recruiting from overseas?

Sub-contractor/consultant insurance requirements – depending on where in the contracting “chain” your insured is, they may require sub-contractors to hold their own insurance, which reduces the exposure on their own programme. Recent trends indicate more requests are being made by main contractors, project managers and principals involved in the Christchurch rebuild requiring the sub-contractor/consultant to also evidence Professional Indemnity Insurance as well as General Liability insurance.

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Sub-contractor/consultant limitations of Liability – another point to bear in mind is that some professional groups, notably engineers and architects, use industry-wide, standardised agreements for conditions of contract which feature limitations of liability, often indexed to the fee charged for the service. These can leave the main contractor exposed where their sub-consultants contracts do not mirror or are not “back to back” to their own agreement with the principal. Examples of these sub-consultants agreements are:

- Short Form NZIA (NZ Institute of Architects) – generally liability is limited to five times the fee or \$250,000 , whichever is the lesser.
- Short form CCCS (Conditions of Contract for Consultancy Services) – issued by the Association of Consulting Engineers New Zealand Inc and The Institution of Professional Engineers New Zealand. The maximum amount payable for liability under this agreement is as specified in the Schedule – this is usually five times the fee with a maximum of \$2,000,000, although often lower limits of \$500,000 or \$250,000 are selected
- Short Form Agreement (IPENZ) – liability is limited to five times the fee with a maximum of \$500,000

These agreements are commonplace and widely accepted, and are a feature of dealing with these professions. Without them, the cost of insurance for most SME businesses in these professions would be prohibitive. It is worth noting and considering these as factors however when underwriting works where they will be in play.

Materials

Once the rebuild gathers momentum, large quantities of building materials will be required. Will they be NZ sourced or directly imported by the building company from an overseas producer? Some construction companies may consider directly importing building materials to reduce costs or overcome shortages of or waiting periods for local materials.

Of course, all building materials to be used in the rebuild must comply with the NZ building standards, however the potential for recovery against an overseas manufacturer of products which have been found to be defective is complicated by issues of:

- Jurisdiction – for example the manufacturer possibly has no NZ presence or sales agent, in which case they may have made the sale of goods subject to their own jurisdiction, necessitating any suit for recovery being brought overseas, at a much-increased cost for legal proceedings, not to mention the NZ insurer’s disadvantage in not being familiar with the legal climate in that particular jurisdiction and the extra time it may take to conduct the recovery process.
- “Lost in translation” – technical specifications and/or installation instructions in English may be brief or incorrect .
- Technical support – not as readily available if the manufacturer has no local agent.

Regulation

Following the Christchurch earthquakes, a number of regulations were introduced specific to the rebuild. Whilst these may not directly affect the underwriter’s view of the risk, it’s worthwhile visiting some of these, as they have given rise to an increased level of reporting and compliance in undertaking a rebuild or repair, and will result in more activity for consulting professionals such as town planning, engineering around the building consent process.

Just recently, the Insurance Council was successful in appealing the Christchurch City Council’s 2010 policy which set a structural strengthening target of 67% of the new-building standard for “earthquake prone, dangerous and insanitary buildings” beyond the legal requirement of 34% of the code.

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For reference, an “earthquake-prone building” is defined as one that is likely to collapse in a moderate earthquake or which is less than 33 per cent of the building standard.

Despite this ruling, the Council is still encouraging building owners to strengthen their buildings to the 67% goal wherever possible or economically feasible. It’s worth noting this requirement does not apply to new builds or replacement buildings, which are required to comply to 100% of the standard.

As part of any process of repair/ re-strengthening, the building owner will need additional engineering input to assess the building’s earthquake strengthening level.

Builder Licensing –the Licensed Building Practitioner regime came into partial effect in 2012. If the regime is expanded beyond the current domestic building requirements we may see building delays and/or bottlenecks arising out of a shortage of available LBPs with the correct licensing for the task.

Recovery Plan Blueprint - this refers to the Recovery Plan for the Christchurch CBD established under the Canterbury Earthquake Recovery Act 2011 which affects central city landowners. This has resulted in a number of changes to the Christchurch City Council’s District Plan, and will necessitate acquisition of large areas of private land by the Crown to enable the Plan’s anchor projects. New zoning and rules are in place governing CBD land usage and occupation, which will determine what type of rebuild can be undertaken in the CBD area. Some key features include:

- Building height restrictions
- Minimum setback from the Avon (30 metres recommended in the latest geotechnical report)
- Limitations on occupation / size in certain zones and mall precincts – a smaller, more compact CBD
- Changes to existing roads and road usage (ring road and some one way streets converted to two ways)

Although it is possible to seek consideration of non-compliance with the Plan, this will require additional Resource Consent applications or an application for exemption on the basis of “existing use rights”, which will require supporting site-specific assessments.

Land usage/zoning – as well as the CBD land usage changes, large areas of damaged land (for example areas adjacent to the river at Kaiapoi) cannot be re-used economically, and have been re-zoned as “green spaces”.

Design Loading

The increased design loads referred to in this section apply to mainly “new builds”, and also noting that these increased design requirements are likely to be outside of the scope of insurance covering an existing damaged building, so represents an additional cost met by the building owner.

Strengthening to meet standards – new builds will have to meet 100% of the earthquake strength requirements of the new code. This will result in increased engineering costs, and for the underwriter, more fees attributable to this discipline.

Ground conditions – geotechnical consultants have never before been in so much demand, and have never faced a higher period of exposure, as the focus goes on them to produce reports on the current and future ground stability of building sites in the Canterbury region. Their recommendations may well involve increased foundation design work, or even land remediation measures.

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Environmental Constraints

Green Star Environmental rating - this is a voluntary rating system which evaluates the environmental design and construction of buildings – possible ratings are 4, 5 or 6 star – rating is undertaken by the NZ Green Building Council, a not-for-profit industry organisation.

The Christchurch Central Recovery Plan which applies to the CBD will require new office, retail shops, cafés, bars and restaurants, apartments and mixed use buildings within the Central City to achieve a pass score under the new green rebuild tool, BASE - Building a Sustainable Environment. This certification is not the full "Green Star" rating that can apply to buildings, but is an entry level green building requirement.

There are 18 criteria in the BASE tool, which include:

- 30 percent of construction waste must be diverted from landfill;
- efficient water fittings and taps should be installed and
- the energy efficient design of the building's envelope, heating and cooling, hot water and lighting.

Implementation of this new requirement is expected to add cost to the building project costs (estimated between 0.5 and 1.3 per cent of capital cost), and also will see the utilisation of newer technologies such as solar, new insulation materials in the rebuild project.

CBD Rebuild requirements - as earlier discussed under the last slide, under the Recovery Plan Blueprint, there will be a new, specific set of requirements or restrictions on structures rebuilt within the CBD area. From a design loading perspective, these will vary from individual site to site, especially for foundation requirements, depending on soil conditions, however the overall requirements for height restriction, distance from the river and land usage may not in themselves represent a "design load". It should also be noted that exemptions from the CBD Blueprint requirement can be sought for individual rebuilds where they are seen to benefit the city.

Geotechnical conditions – liquefaction and rockfall

There has been a huge amount of focus placed on Christchurch's geotechnical environment since the earthquakes, which were located on previously unknown active faults and caused extensive ground damage including ground surface rupture, liquefaction, lateral spread and rock fall. The CBD experienced severe ground shaking and liquefaction and lateral spreading, with subsidence occurring in the north-east part of the city.

Design of foundation systems for the rebuild will need to take account of the increased risk for these types of ground damage, however it should be noted that Christchurch is not unique in being located on soils susceptible to liquefaction within active seismically active area. There are a number of cities around the world where the level of seismic hazard is similar to or greater than Christchurch, and we may see design solutions trialled/used in these cities being used in the rebuild. The Kobe earthquake in Japan in 1995 for example, featured a high level of liquefaction damage, and as a result many liquefaction resistant designs were used in the rebuild following the Kobe earthquake. One example is a design for a shallow foundation ("shallow" as in foundations for a domestic house which do not extend far into the ground) where all foundation elements are tied together to make the foundation move or settle uniformly, decreasing the amount of shear forces on the structural elements resting upon the foundation.

Deeper piles have challenges from horizontal shearing, and often buildings are built on rubber "pads" to mitigate this (such as was used for Te Papa in Wellington)

It's not just liquefaction - other areas of Christchurch experienced rock fall, and rebuilding requires additional design for retaining walls and protective stabilisation measures such as pinning and shotcreting. The dry summer we have just experienced has also compounded the rockfall problem, with destabilised rocks expanding in the heat of the day, contracting at night and loosening/falling as a result.

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Ground settlement/flooding risk

The land damage caused in the Christchurch area by the earthquakes has been particularly bad in areas close to riverbanks and waterways, with ground levels across large areas of the city settling by as much as 200mm to 300mm, and more in some smaller areas.

In October 2012 the Christchurch City Council released updated floor level requirement for rebuilds of properties in the Avon, Heathcote and Styx river catchments, as well as Sumner. Floor levels in these areas will be required to be between 27 cm to 120cm higher than currently coded due to this settlement, but also in response to the anticipated rise in sea levels.

Aftershocks

More than 11,000 aftershocks have been recorded by GNS Science since the first Canterbury earthquake, a unique pattern that was not expected prior to the earthquakes, but also one which is now gaining acceptance as a feature of the unusual structure of the earth's crust under Canterbury. Aftershocks are likely to be a feature of life in Canterbury for the foreseeable future, although they are expected to decrease in intensity and number.

“New to NZ” materials and methodology’

The unusual pattern of the Christchurch earthquakes and the geotechnical conditions encountered have created opportunities for new (to New Zealand at least) materials and rebuild/repair methodologies to be used in the rebuild process.

Whilst some of these methodologies may appear to be “prototype”, they may have been put into practice for some years in other earthquake-affected areas or used in other engineering processes such as road-slip remediation. Other initiatives are possible due to improvements in building materials. Some examples of these “new technologies” are:

- Ground remediation

In some cases it may be possible to strengthen the soil structure using methods such as “deep soil mixing” where a grout/binder is injected/mixed with the existing soils to improve strength and reduce compressibility. This process has recently been introduced to New Zealand but has been used in specialist infrastructure engineering since the 1960’s in USA.

- Building releveling

There may be some cases where it is feasible to re-level the slab foundations of a building which is otherwise not badly damaged and where it is economic to undertake this specialised repair. Several methods can be used to achieve this (one example is compaction grouting where a grout mix is injected into the soil beneath the affected slab to achieve displacement / densification of the soil in the area), many of these have been used in the post-Kobe rebuild, and were first pioneered in the US.

- Composites and Laminates

A wood industry seminar in 2012 proposed that new wood materials such as cross laminated timber could play a part in the Christchurch rebuild, particularly for floors and ceilings. Another wood laminate product is LVL (Laminated Veneer Lumber), which is an engineered wood which has twice the strength to weight ratio of steel and compression strength equal to the strongest concrete. The relative flexibility of wood also makes it an ideal building material to comply with increased earthquake strengthening requirements and these alternative materials are increasingly being considered by engineers and architects in specifications for new builds.

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Summary

- Although slower to start than anticipated, the Christchurch Rebuild will gain momentum and will affect the construction industry in New Zealand for the next 5 years and beyond.
- Insurance portfolios will change to reflect the increased building activity
- New exposures will be encountered and should be considered

There are many factors to consider, and whilst the underwriter cannot hope to become an expert in all areas affecting the Christchurch rebuild, I hope some of the topics covered in my presentation today have prompted thought and even demystified some of the processes underway.