IN THE HIGH COURT OF NEW ZEALAND
CHRISTCHURCH REGISTRY

CIV-2013-409-1775
[2017] NZHC 2136

BETWEEN	XIAOMING HE Plaintiff
AND	THE EARTHQUAKE COMMISSION First Defendant
AND	CERTAIN SYNDICATES OF LLOYD'S OF LONDON SEVERALLY SUBSCRIBED TO COVERHOLDER CONTRACT B0429CNG90466 First Second Defendant
AND	CERTAIN SYNDICATES OF LLOYD'S OF LONDON SEVERALLY SUBSCRIBED TO COVERHOLDER CONTRACT B0429CNG110466 Second Second Defendant

Hearing:	12-16, 21-23 June and 3-4 July 2017
Appearances:	P A Cowey and A J Summerlee for Plaintiff B A Scott and G M Scott-Jones for First Defendant R M Flinn and A W Moore for Second Defendant
Judgment:	4 September 2017

JUDGMENT OF DUNNINGHAM J

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Introduction

[1] Mr He, the plaintiff, owns a property on a street corner at 377 Selwyn Street, Addington. The property comprises a house, of indeterminate age, but likely to be at least 80 years old, which has a shop attached to the front of it opening on to Selwyn Street. The shop is run as a dairy and Mr He rents the house and shop to a tenant.

[2] Mr He's property was insured during the Canterbury earthquakes in 2010 and 2011 with the second defendants. The second defendants accept that, in the event of damage to the property by the earthquake, they would provide earthquake insurance cover for loss or damage not covered by the first defendant, the Earthquake Commission (EQC), in accordance with the terms of the respective insurance policies.

[3] To date, EQC has paid approximately $16,000 to Mr He for repairs to the house. However, Mr He claims EQC should have paid him the maximum of $100,000 plus GST for each of the earthquake events on 4 September 2010, 22 February 2011 and 13 June 2011 because each of the earthquakes caused significant damage to the property, in particular, to the foundations of the house.

[4] Mr He claims that the second defendants, whom I will refer to collectively as Offshore Market Placements Limited (OMPL),[1] are also liable because the damage to the house in each earthquake event exceeded the amount of the EQC cap. He also claims OMPL should pay for damage to the garages to the rear of the property and to the concrete hardstand area in front of them. In total, Mr He now claims he is owed around $717,000, plus interest, by the defendants.[2]

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1 Being the company which acts as agent for the underwriters of the insurance policies.
2 Being the amount set out in the Schedule attached to the plaintiff's closing submissions.

[5] Both EQC and OMPL resist Mr He's claims for further payments. They say that the foundation damage claimed by Mr He was pre-existing and was not materially altered by the earthquakes. Similarly, OMPL resists the claims for damage to the concrete hardstand and rented garages on the basis that the identified damage was pre-existing, reflecting their age and deficiencies in their construction.

[6] In light of this background the issues for determination are:

(a) Was there material damage to the property, as a consequence of the Canterbury earthquakes, in addition to that which the defendants have responded to?

(b) If so:

(i) How extensive was that damage?

(ii) What is required to remediate it?

(iii) Which earthquake event does it relate to or, if more than one, how should it be apportioned between the earthquake events? and

(iv) What is the cost of the remedial work?

(c) Did the fact Mr He accepted the installation of a heat pump under the Chimney Replacement Scheme mean he is no longer entitled to cost of repair of one of the chimneys?

(d) If any of the defendants are found liable to make a further payment to Mr He, should interest be awarded and when should it run from?

The property at 377 Selwyn Street

[7] The history of the construction of the house is relevant to the issues in this proceeding. There have been alterations to the house over time, and there are

differences over the extent to which the property's construction has contributed to pre-existing settlement, or its performance in the earthquakes. There are also live issues as to whether the observable damage to the house was the result of the earthquakes or the lack of maintenance over many years.

[8] It is not known when the original part of the dwelling was constructed. However, the general view of the builders who inspected it was that it was at least 80 years ago. The original dwelling is sited close to the street frontages on the south and east of the property and comprises a single storey timber-framed and weatherboard-clad house with a corrugated iron roof. At the time of construction there was also a separate outhouse to the south west of the dwelling. Early on, the front of the house was modified to create the shop entrance. In the mid 1950s the house was extended to the rear and the extension incorporated the outhouse within the dwelling. This extension created a large room on the north side, which was subsequently fitted with an external sliding door, and which is now used as a storeroom. The addition also incorporates a small kitchenette, laundry and bathroom.

[9] Two garages were constructed to the rear of the section. Historic aerial photos show that the larger garage, nearer to the road on the south boundary, was built in the early 1950s (the south garage) and the smaller garage to the north of it, was built in the 1980s (the north garage). A concrete hardstand area was laid between the garages and the rear of the house, around the time the first garage was built.

[10] Although it was not possible for engineers to inspect the underfloor area of the house because of the lack of ground clearance, photographs were able to be taken of some areas underneath the house using a remote-controlled camera unit. In addition, the parties' structural engineers undertook some excavation around the perimeter of the house to determine what foundations exist.

[11] These investigations show that the piles under the original house comprise quarry stone foundations going down approximately 250 millimetres into the ground, some with wooden packers inserted on top of them. The piles are relatively small

and this affects their bearing capacity. The subfloor bearers are not attached to these piles and some of the bearers are resting on the ground. There is also an unreinforced concrete strip foundation along the front of the shop on the eastern side and along part of the southern exterior walls.

[12] The foundations which were located under the newer section of the house, particularly in the northwest corner, are inadequate. Under the toilet and laundry area on the southwest side they comprise a combination of stones and bricks. On the northern side of the addition there are no stone piles but, over the course of their investigations, engineers located two small rotting wooden piles on the north west corner of the property. In this corner the timber bearer beneath the wall is embedded in the ground and the wall is bearing on the ground by way of the timber bearer rather than on piles. Some of the bearers under the bathroom, toilet and laundry are also sitting directly on the ground and the engineers have had difficulty ascertaining what foundation system was there, if any. The southwest corner also has an external bearer sitting on the ground.

[13] Underneath where the older part of the house meets the addition, there are rudimentary packers of bricks and small pieces of timber under the floor joists near the back wall of the original dwelling. There is no evidence that the foundations beneath what was the exterior wall of the original dwelling were enhanced to support the extra load on them resulting from the new addition.

[14] Early in the hearing a site visit was undertaken. It confirmed the photographic evidence which showed that the house is in extremely poor condition. Inside, the floor is undulating and there has been little maintenance to the interior for many years. Indeed the floorboards in the bathroom have rotted right through. On the exterior, the weatherboards are rotting and peeling, the gutters are slumping and rusting, and the concrete perimeter rim foundation has visible cracks in it at regular intervals. This created significant difficulties in establishing what, if any, damage was earthquake related.

Background to the claim

[15] Mr He and his wife initially moved into the property in 1999 as tenants.

[16] Mr He's parents'-in-law came to visit them at the property for several months from late 2002 to mid 2003. Photos were taken during that visit which provided a useful reference point for the condition of the house at that time.

[17] In 2005, Mr He and his wife purchased the property for $310,000 and then leased the property to Mr Isaiah Loh and his family. Mr Loh still lives in the property and operates the dairy in the front shop. However, Mr He did not lease the rear garages to Mr Loh. Instead, Mr He leased them in November 2010, along with the rear hardstand area, to Mr Graham Newell, who uses them for his business as a motor mechanic.

[18] In December 2009, Mr He renewed his replacement cover insurance through OMPL, and this cover was provided by first second defendant. It was during the term of that policy that the September earthquake occurred. There is no dispute that, in that earthquake, the brick chimneys were damaged above the roofline and had to be taken down to below the roofline. An invoice was submitted to EQC for the demolition on 10 September 2010. There was also consequential damage to the roof, and damage to the hot water cylinder connections, which was repaired. The cost of those repairs was reimbursed by EQC.

[19] On 14 September 2010, the first EQC inspection occurred. The record of the inspection noted that the only earthquake damage was to the roof and chimney. It expressly recorded that "N/D" (meaning no damage), was found in any of the rooms or to the foundations. It also noted that the exterior weatherboards were "rotten and in poor condition". Mr He signed the inspection record confirming that "damage caused by the event has been noted and to my knowledge there are no other areas of damage resulting from the event".

[20] Mr He advised his insurer that he had made an EQC claim and OPML sent its loss adjuster, Cunningham Lindsay, to inspect the earthquake damage at the property. The loss adjuster's first report, dated 6 October 2010, noted that the only damage

was to the dwelling. It recorded that the chimneys were fractured, the geyser (or hot water cylinder) connections had pulled apart, there was cracking at the cornices of one of the bedrooms and there was a "subsiding cement floor" at a "lounge area". It also noted that the dwelling damage appeared to be "pre-existing", but said it would not concern itself with this aspect of the claim as it "falls within the EQC extension to the policy".

[21] In December 2010, Mr He renewed his contract for replacement insurance cover through OMPL, with the insurance provided by the second second defendant.

[22] Just over two months later, the 22 February 2011 earthquake occurred and Mr He lodged a further claim with EQC.

[23] In May 2011, as winter approached, Mr He had a heat pump installed at the property under the EQC/EECA Chimney Replacement Programme.[3] When the pump was installed, Mr He signed a document which stated that "the heat pump installed in the property is accepted in place of the chimney being rebuilt". He now disputes that the heat pump was accepted in lieu of his entitlement to have one of the two chimneys replaced and still seeks payment for the cost of replacing the second chimney.

[24] On 13 June 2011, two further earthquakes of magnitude 5.9 and 6.3 occurred. Mr He claims that these earthquakes caused a water pipe to burst at the rear of the property under part of the concrete hardstand and that this was when damage to the garages and hardstand area occurred. The invoice for the repair to the pipe and hardstand area was, however, dated 22 March 2011 and received by EQC for payment on 31 March 2011. EQC reimbursed the amount of that invoice in due course. I will return to the date anomaly later in this judgment.

[25] The second EQC inspection did not occur until 27 October 2011. It recorded the further earthquake damage to the property as being the burst water pipe after the June earthquake (presumably relying on Mr He's account) and some cosmetic

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[3] This was a programme managed by the Energy Efficiency and Conservation Authority (EECA) which offered EQC claimants who had chimney damage, the option of installing an energy efficient heating source instead of having their chimney repaired.

damage to ceilings and wall linings. The assessors also noted a chronic lack of maintenance and that they were unable to tell where the existing poor condition ended and possible earthquake damage began. They noted the floor levels showed a fall of greater than 50 millimetres over six metres but considered this damage to be "pre-earthquake and a result of time, nature of building materials used, neglect etc.".

[26] On 31 October 2011, Mr He notified OMPL of his EQC claim number for the June 2011 event. He also engaged an engineer, Mr Robert Ling, and a brief report was prepared by that engineer and sent to EQC. It concluded:

(a) the visible perimeter concrete foundation had suffered "worsening of existing cracks caused by the EQ events";

(b) there was differential settlement of the floors;

(c) there was no apparent damage to the weatherboards;

(d) the walls were out of plumb; and

(e) because the extent of the leaning of the walls and the settlement of the floors was more than Mr Ling expected for a building of this type and age, he concluded that the earthquakes had made this pre-existing damage worse.

[27] Cunningham Lindsay inspected the property again on 30 December 2011. They recorded that it was not possible to determine what percentage of the extensive cracking to the perimeter foundations was due to the earthquake and what to age and normal movement, so they were "unsure whether an insured peril has operated and if so to what extent it has caused damage". However, they proposed a reserve of $300,000 plus GST be allocated.

[28] Mr He's tenant, Mr Newell, arranged for plaster and paint repairs to the inside of south garage and that invoice was sent to EQC in March 2012.[4]

[4] It was subsequently clarified that this claim was not within the scope of EQC cover and the

[29] By 7 November 2013, EQC had paid or expended $15,934.08 in settlement of Mr He's claims. This total was comprised of the following amounts:

(a)	Plumbing – hot water cylinder and toilet	$595.90
(b)	Chimney removal	$300.00
(c)	Repairs to pipework	$130.00
(d)	Re-roofing two sections of roof	$3,800.03
(e)	Repairs to leaking pipe under driveway	$387.50
(f)	Heat pump	$3,774.40
(g)	Cash payment in November 2013 for rebuilding second chimney ($5,089) and repairing internal lining in two rooms ($2,457) less $600 excess.	$6,946.25
Total including GST		**$15,934.08**

[30] Shortly afterwards, Mr He filed these proceedings claiming nearly $325,000 from EQC and over $385,000 from OMPL.[5] While that claim has been amended in the intervening period, it does not materially change the position of the parties. Mr He claims that the property had suffered substantial earthquake damage necessitating repairs which, at the commencement of the hearing, were costed at approximately $850,000, while EQC and the insurers maintain that the house had suffered relatively modest damage that has largely, if not entirely, been addressed by the EQC payments and OPML's agreement to pay for the repairs undertaken to the south garage.

Cover under the EQC Act

[31] EQC is a Crown entity which administers insurance against natural disaster damage, provided under the Earthquake Commission Act 1993 (EQC).[6] Natural disaster damage is defined under the EQC Act as "any physical loss or damage to the property occurring as a direct result of a natural disaster".[7]

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second defendants have accepted the claim for these costs.

5 Being the costs of repairs apportioned over three earthquake events up to the statutory EQC cap and the insurance cover cap, plus a claim for general damages.

6 Earthquake Commission Act 1993, ss 4A and 5(1)(a).

7 Section 2(1).

[32] Cover provided by the EQC Act applies to a residential building. That is defined in the EQC Act to include buildings or structures belonging to a dwelling used for the purposes of the household or the occupier of the dwelling, and includes a garage sited on the same property as the residential dwelling.[8]

[33] Other external works such as pathways, driveways and fences fall outside EQC's statutory cover and are referred to as "out of scope" elements. In the present case, it has been maintained by EQC, and now accepted by Mr He, that the garages do not fall within the definition of a residential building as they are not being used by the occupier of the dwelling but are leased separately, to a different tenant, for commercial purposes. Thus, the claims for damage to the hardstand area and garages are made solely against OPML.

[34] Cover for residential buildings against natural disaster damage is governed by s 18. Relevantly, it provides:

> **18 Residential buildings**
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> (1) Subject to any regulations made under this Act and to Schedule 3, where a person enters into a contract of fire insurance with an insurance company in respect of any residential building situated in New Zealand, the residential building shall, while that contract is in force, be deemed to be insured under this Act against natural disaster damage for its replacement value to the amount (exclusive of goods and services tax) which is the least of—
>
> …
>
> (c) the amount arrived at by multiplying the number of dwellings in the building by $100,000 or such higher amount as may be fixed from time to time for the purposes of this paragraph by regulations made under this Act.

[35] EQC's liability is thus:

(a) dependent on a contract of fire insurance being in force in respect of the residential building; and

(b) limited to $100,000 plus GST in respect of each earthquake event.

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[8] Section 2(1).

[36] EQC insures the residential building for its "replacement value" (subject to the financial limit of $100,000 plus GST). In relation to a residential building, "replacement value" is defined in s 2(1) of the EQC Act as follows:

> "Replacement value means—
>
> (a) in relation to a residential building, any costs which would be reasonably incurred in respect of—
>
> (i) demolition and removal of debris, to the extent that is essential to enable the building to be replaced or reinstated; and
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> (ii) replacing or reinstating the building to a condition substantially the same as but not better or more extensive than its condition when new, modified as necessary to comply with any applicable laws; and
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> (iii) complying with any applicable laws in relation to the replacement or reinstatement of the building; and
>
> (iv) other fees or costs payable in the course of replacing or reinstating the building, including architects' fees, surveyors' fees, and fees payable to local authorities; and

[37] In summary, the EQC Act contemplates the replacement or reinstatement of all or any part of a residential building which suffers natural disaster damage to a condition substantially the same as, but not better or more extensive than, its condition when new.

Cover under the insurance policies

[38] The policies issued by OPML are for two separate periods, one for the year to 18 December 2010 and the other for the year to 18 December 2011, but there is no material difference in the cover offered.

[39] Each of the policies provides cover in the following terms:

> If any unintended and unforeseen physical loss or damage happens to any of the Property Insured at the Location and during the Period of Insurance the company will indemnify the Insured by payment for that loss or damage or, at the option of the Company, by the repair or replacement of the Property Insured.

[40] The sum insured is $300,000 in each policy period. Cover for natural disaster damage is governed by cl 1.26 which provides that:

> Where any Property Insured detailed in the Schedule/Placing Slips comprises residential buildings or personal property (both as defined in the Earthquake Commission Act 1993), the indemnity expressed in this policy shall extend to include loss or damage caused by earthquake, volcanic eruption, hydrothermal activity or tsunami provided always that:
>
> (a) the Earthquake Commission (EQC) admits liability, either in full or in part, for such damage;
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> (b) the liability of the company under this Clause:
>
> (i) shall not apply to that amount;
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> (ii) shall not exceed the difference between the sum insured and the maximum amount for which EQC would be liable if no excess applied.

[41] The effect of this clause is that:

(a) EQC's admission of liability, in full or in part, for such damage is the trigger for the insurer's obligation to indemnify the insured; and

(b) it limits the insurer's obligation to indemnify the insured to the first $200,000 of loss or damage it suffers above $100,000 (excluding GST).

[42] Under cl 2.10 of the policies, the amount payable to the insured "will be the cost of reinstatement of [the lost or damaged] property". Reinstatement is defined in the policies to mean "replacement by an equivalent building" where property is lost or destroyed or, where damaged but not destroyed, "restoration of the damaged portion of a property to a condition substantially the same as, but not better or more extensive than, its condition when new".

[43] It is a condition precedent to liability under the policies that on becoming aware of an event giving rise to a claim, the plaintiff will provide:

(a) immediate notice of the event;

(b) full particulars of the claim within 30 days (or as soon as practicable thereafter); and

(c) any reasonably required proof and information in respect of the claim.

[44] The second defendant's position is that these clauses have not been complied with in respect of any damage to the hardstand and garages. While it does not resist the claim on the basis of late notification, because it accepts there is no prejudice, it does consider this is a factual issue to take into account when assessing whether Mr He has been honest in his subsequent assertions that the damage was suffered as a consequence of the earthquakes.

Case management of these proceedings

[45] Because this case related to earthquake damage, it was put into the Canterbury earthquake litigation list established by the High Court. The purpose of the earthquake list is to expedite processing of the case by requiring the parties to engage early on to identify what is in issue in the case. In particular, the parties' experts are required to be appointed, exchange reports, and refer back jointly to the Court by the second case management conference. The purpose of doing this is to encourage the early identification of issues, through the exchange of expert reports, followed by the caucusing of experts, so that the parties can identify the strength and weaknesses of their cases sooner than normal. That process is intended to encourage resolution of the case without trial or, if it does proceed to trial, to reduce the issues in dispute so that the trial is more focused.

[46] Unfortunately this case has not achieved the efficiencies envisaged by the earthquake list case management process. Mr He has engaged six different structural engineers over the course of progressing his earthquake claim.[9] The defendants have had to respond to an evolving theory of the plaintiff's case. The trial itself was complicated by the fact that critical assumptions on which the plaintiff's case was advanced, were only revealed in the plaintiff's evidence in reply. I therefore allowed

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[9] Mr Andrew Chapman of Kirk Roberts Consulting Engineers Ltd, Mr Robert Ling of Lings Design Consultants Ltd, Mr Zoran Rakovic, Mr John Scarry, Dr Zheng Ping Wu and Mr Brett Gilmore.

further evidence in response to be led by the defendants. However, the plaintiff then endeavoured to introduce further rebuttal evidence, including a revision of the defendants' seismic load calculations, during the presentation of his evidence-in-chief.

[47] During a break in the hearing between Friday, and its scheduled resumption on the following Wednesday, I urged the structural engineers to confer with a view to producing a joint statement which identified the matters on which they were agreed, and those on which they differed and why, particularly in relation to the seismic load calculations. However, such a document was not produced despite some engagement between the parties' experts during that period. By that stage, it was clear to me that a somewhat defensive stance had been adopted, particularly on the part of the plaintiff's expert witnesses, which meant little was achieved in terms of reducing the issues in dispute during the belated conferencing process.

[48] I outline this background because it both had procedural and substantive consequences. Procedurally it:

(a) contributed to the significant delay in progressing this matter to hearing;

(b) contributed to the length of the hearing, which had been set down for only five days but occupied 10 days; and

(c) meant much cross-examination time was spent in simply trying to understand the competing contentions of the witness, which would have been avoided had they engaged in a timely and constructive conferral process.

[49] More importantly it:

(a) put the defendants' witness at a disadvantage. As the defendants said, it meant their experts had to respond to questions without having the chance to consider them either in terms of their separate engineering

disciplines, let alone in terms of how the different engineering disciplines fitted together. This was the antithesis of how earthquake case litigation (or any civil litigation) should be conducted.

(b) made my job distinctly more difficult because I was not comparing two finalised competing positions. Instead I was hearing evidence which was evolving during the course of the hearing, making some of the earlier evidence redundant, and requiring me to assess where the experts had eventually got to.

[50] Had I considered the further evidence adduced by the plaintiff during the hearing critical to the outcome of the case, it may have led to the adjournment of the hearing. However, for reasons I go on to explain, I consider the further evidence produced by the plaintiff did not discharge the onus on him.

The plaintiff's evolving case

[51] Continuing this unsatisfactory sequence of events, the plaintiff's position continued to shift during the hearing from that set out in the amended pleadings. In the plaintiff's opening submissions, it was, for the first time, suggested that after the September earthquake there was no discernible damage to the floors presumably to bolster the claim that the February earthquake had caused the damage. Mr He then conceded in cross-examination that he was not making a claim for any additional damage caused by the September 2010 event other than for complete repair of both chimneys. That concession was reasonable when the geotechnical and engineering expert witnesses he called focused on the likelihood that the 22 February earthquake event would have caused the alleged damage to the foundations. However, confusingly, in closing submissions he still claimed to have suffered damage in excess of the EQC cap in respect of the September earthquake.

[52] Despite this lack of clarity, in the end, the plaintiff essentially advanced the following case:

(a) Mr He says the dwelling suffered damage after the February 2011 earthquake, and the garages and hardstand area suffered damage in the June 2011 earthquake;

(b) the plaintiff's structural engineer, Mr Gilmore says the observed damage to the property is consistent with earthquake damage; and

(c) relying on the geotechnical analysis of Mr Thompson and his own structural engineering expertise, Mr Gilmore says the observed damage was more likely to be earthquake damage given the physical properties of the structures, the force of the earthquake, and the bearing capacity of the relevant soils.

[53] The essence of the defendants' challenge to those propositions is that:

(a) there was no obvious difference in the relevant structures following each of the earthquake events, and no physical evidence of damage that one would expect;

(b) there are a number of pieces of evidence which support the fact that the observable settlement and misalignment in the buildings was historical and had been occurring over a period of time; and

(c) given the physical properties of the buildings, the bearing capacity of the ground at the time of the earthquake, and the earthquake forces involved, it is implausible that the damage claimed was caused by the earthquake.

[54] Those, in summary, are the factual contentions I have to consider. There are also some relevant legal principles which have to be kept in mind as set out below, as I consider the evidence to support these competing contentions.

The relevant law

Burden of proof

[55] As a general principle of insurance law, it is the insured person who must make out his or her claim under the policy of insurance.[10] EQC submitted there are also broadly similar obligations under the EQC Act on the insured person, particularly given the obligations prescribed in Schedule 3, cl 7 of the EQC Act. In any event, the defendants both emphasised the fundamental principle that it is the plaintiff who has the burden of proving, on the balance of probabilities, every material fact of his or her cause of action. Accordingly, the defendant emphasised that the burden falls on Mr He to prove the occurrence of an insured event and the damage alleged to arise from the insured event, along with its quantum.

[56] In response, Mr Cowey submitted that the rules about burden of proof need only be resorted to when the evidence is insufficient for the Court to make a decision. Furthermore, once the insurer had elected to make a payment based on a hypothetical repair strategy, then the insurer assumed the burden of proving that the payment met its replacement obligation.[11] In this case, EQC has paid $15,934.08, and assert that is its full liability and so has assumed the burden of showing that that payment discharges its obligation for the chimneys and the other accepted damage to the property it has purported to settle.

[57] To the extent the issue of burden of proof is engaged, Mr Cowey directed the Court to a passage from MacGillivray on Insurance Law which noted that:[12]

> In *Ide v ATB Sales Ltd* [2008] EWCA Civ 424, Thomas LJ held that as a matter of common sense, where there are two competing theories *neither of which is improbable*, then having rejected one it is logical to accept the other as being the cause on the balance of probabilities.

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10 As was recently reiterated in *Jarden v Lumley General Insurance (NZ) Ltd* [2015] NZHC 1427, (2015) 18 ANZ Insurance Cases 62-077 at [47]-[54].

11 *O'Loughlin v Tower Insurance Ltd* [2013] NZHC 670 at [147]-[152].

12 John J Birds (ed) *MacGillivray on Insurance Law* (13th ed, Sweet and Maxwell, London, 2015) at [21-009].

Here, he submitted that the theory that all damage was pre-existing was "inherently improbable" or, at least, significantly less likely than the theory that material damage had been caused by the earthquake.

[58] In my view, the exception referred to in *O'Loughlin*, where the onus falls on the insurer (and which was not firmly adopted on by Asher J), plays almost no part in these proceedings. The material dispute is not whether the agreed repairs can be achieved for the sum paid by EQC, but whether EQC and the insurers have dramatically underestimated the extent of the damage, and the extent of their obligation to repair.

[59] For this reason, I am satisfied that that, in respect of the key issues in this case, the plaintiff has the burden, on the balance of probabilities, to establish that an insured loss has been suffered, and the extent of that loss.

What is damage?

[60] Initially the issue of what constituted damage for the purpose of cover under the EQC Act, or under the insurance policies, did not appear contentious. However, it became so in the course of the hearing. This was because Mr He's original position had been that the significant dislevelment in the house was caused by the three main earthquake events. However, in the face of compelling evidence that the house was significantly out of level prior to the earthquakes, the question became whether there was any further change to that which constituted damage that triggered the defendants' obligation to repair the property to its condition "when new".

[61] The essence of the defendants' case was that, given the state of the house before the earthquakes, including the significant dislevelment and foundation cracking, even if there had been some further minor change to that, it did not materially add to the pre-existing damage. Similarly the exterior weatherboards were so dilapidated and the paintwork so cracked and peeling that, again, no further discernible damage was caused by the earthquake.

[62] Mr He's lawyers approached it from the other view. Any change that was not de minimis constituted damage for the purposes of the EQC Act and the insurance policies, and required remediation of that component to its condition when new.

[63] The issue of what constitutes damage has been considered before. In *Kraal v EQC*, the Court observed there was little difference between the interpretations the parties put forward of the word "damage", saying "its ordinary meaning is of harm done to something which impairs its value or usefulness".[13]

[64] A similar statement was made in *C & S Kelly Properties Ltd*, where Mander J said:[14]

> The question of whether there has been physical damage turns on whether an alteration to the physical state of the material … impairs its value or usefulness as a component in the building. Each case is required to be examined on its own facts to determine whether an alteration to the physical state has occurred to such an extent that it can be considered more than de minimis, and the point reached that physical damage can be said to have occurred.

This reflects the language used in an earlier case, *Ranicar v Frigmobile Pty Ltd*, where Green CJ explained the meaning of "damage" in the following terms:[15]

> In my view, the ordinary meaning, and therefore the meaning which I should prima facie give to the phrase "damage to" when used in relation to goods, is a physical alteration or change, not necessarily permanent or irreparable, which impairs the value or usefulness of the thing said to have been damaged. It follows that not every physical change to goods would amount to damage. What amounts to damage will depend upon the nature of the goods.

[65] In the *C & S Kelly* case, the Kellys' house had some pre-existing settlement of the floors. EQC therefore submitted that it was not sufficient for the Kellys to show some physical change, but there had to be some practical impact on the utility or value of the house as a result of the earthquake. The Court accepted that approach as correct in principle, but found that the dislevelment caused by the earthquakes was both considerably more than de minimis and also did have an impact on the

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13 *Kraal v EQC* [2015] NZCA 13 at [37].
14 *C & S Kelly Properties Ltd* [2015] NZHC 1690 at [175].
15 *Ranicar v Frigmobile Pty Ltd* (1983) 2 ANZ Ins Case 60-525 (TASSC) at 5.

amenity and utility of the house, and therefore on its value, including to a prospective owner.

[66] By way of a contrasting example, in *Sadat v Tower Insurance Ltd*, there was clear evidence of floor dislevelment prior to the September 2010 earthquake.[16] While Nation J thought it likely there may have been "some slight increase in the level of floor dislevelment with the September 2010 earthquake,"[17] he held that the plaintiffs had not been able to prove that the earthquake resulted in "a material difference to the extent of dislevelment that existed before the earthquake".[18] Consequently, he rejected their claim to have suffered natural disaster damage.

[67] In summary, therefore, for damage to have occurred, there needs to be both a physical change to the building that is more than de minimis, and an impairment to its value and usefulness. Pre-existing damage is not, of course, a barrier to a claim for earthquake damage. However, it may be so pronounced or extensive that minor additional damage may make no material difference to the utility or value of the property. Such an assessment is not to be approached in a niggardly fashion. However, equally, an insurer should not be required to repair or reinstate something to its condition when new when, assessed objectively, there has been no discernible change to the value, amenity or utility of the insured property caused by the natural disaster.

[68] I return to these issues when discussing the discrete heads of claim as to physical damage.

What was the condition of the property prior to the Canterbury earthquake sequence?

[69] Mr He's case originally rested on a comparison between the property before the earthquakes, when he described the floors as being level, with their alleged post-earthquake state of significant dislevelment. Indeed, the plaintiff's opening submissions advanced his claim on the basis that "there is no contemporaneous

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16 *Sadat and Tower Insurance Ltd* [2017] NZHC 1550.
17 At [247].
18 At [254].

document that shows anybody noticed the floor slope, until after February [2011]", after which "the floor slope was obvious".

[70] It is accepted by the expert building surveyors that there is a slope differential of 156 millimetres between the highest point of the floor and the lowest, with the slope being particularly pronounced towards the northwest corner of the rear addition to the house.[19] However, the defendants assert there is compelling evidence that this degree of dislevelment was pre-existing.

[71] It is therefore essential to make a finding as to the condition of the property prior to the Canterbury earthquake sequence, in order to determine whether there has been damage to the property which the defendants are liable to repair. In this regard, there is a range of evidence available. This includes the evidence given by Mr He, his wife Ms Ye, and the tenant Mr Loh, as well as photographic evidence, and physical evidence relating to the structure itself.

Evidence of Mr He

[72] Mr He's original statement of claim alleged damage from the three earthquakes which included "cracking to the perimeter foundation" and "differential settlement of floors with a differential of 154 millimetres". In his 4 July 2014 "will-say" statement to the Court, he said that before the earthquakes, the floors were "quite level" and "sat right and felt straight" and there was "no sagging in the floor". However, in his evidence-in-chief in this proceeding, he conceded that "there were minor undulations in the floor". When cross-examined on which of these statements was correct, he replied "both correct". However, when questioned on where in the house the undulations were, he said he did not know. When asked why he would say the floor was undulating if he could not say where the floor was undulating, he accepted that he did so to give him "a bit of insurance, a bit of protection" in the proceedings (presumably in light of the risk the Court would hold there was evidence of pre-existing settlement).

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[19] While some evidence and earlier reports refer to slightly different figures of 152 millimetres or 154 millimetres, the evidence at trial consistently used the figure of 156 millimetres.

[73] In the end, given my assessment of the other independent evidence as to the house's state before the earthquakes, and my findings on Mr He's credibility on other matters, I put no weight on his assertions that the floors were level or, at worst, subject to just some minor undulations, before the earthquakes.

Evidence of Ms Ye

[74] Similarly, his wife, Ms Ye, said in evidence that the house was "well maintained" while she and her husband lived there and that, "in 2005, there was nothing to notice about the floor, but after the earthquakes there was noticeable unevenness". She made similar statements in her "will-say" statement of July 2014 where she stated that "the floor didn't sag it felt very level" and the house appeared "normally maintained". When asked in cross-examination whether she recalled the floor level sloping towards the ranch slider in the back room, she said that was "not true". When confronted with photographic evidence that contradicted her position that the house was well maintained and that there were no cracks in the weatherboards prior to the earthquakes, her response was either that she could not remember seeing that, or that she did not pay attention to that detail at the time.

[75] In conclusion, I found that Ms Ye's evidence does not assist to corroborate Mr He's evidence. She was vague when tested and, in my assessment, was endeavouring to support her husband's position but she had little accurate and independent recollection of the state of the house prior to the earthquakes which would assist the Court.

Evidence of Mr Loh

[76] Mr Loh had been the tenant of the property since 2005. His evidence was that:

(a) he did not notice any change in the floors as a result of the earthquakes;

(b) the level of shaking in both the September 2010 and February 2011 events did not cause significant damage to the interior or to stock in the shop; and

(c) the fireplaces were not being used prior to the earthquakes and were boarded up.

In general, I assessed Mr Loh to be a reserved and careful witness, who gave straightforward answers to the questions addressed to him.

[77] However, in submissions for the plaintiff, it was suggested that Mr Loh's evidence should be discounted because he had a motive to give evidence which minimised the extent of earthquake damage. If earthquake repairs were commenced on the property, his tenancy would end, and that would result in his business, with a capital value of some $200,000 to $250,000, being immediately lost. Furthermore, he had his brother living with him who suffered from a mental disorder which made it difficult for him to leave his bedroom, and Mr Loh would be anxious to avoid that upheaval. However, that allegation was not directly put to Mr Loh in cross-examination and, accordingly, I put limited weight on that submission. In any event, I found Mr Loh's evidence to be significantly more consistent with the available photographic and physical evidence than Mr He's, and therefore more reliable.

[78] The high point of challenging Mr Loh's evidence was that he distanced himself from the wording of his written brief, where he described the February earthquake as involving "violent shaking", instead saying "can't say it's really violent because it's just a few things fell and it just came - that's about it". However, I am satisfied that when the answers he gave in cross-examination are considered in their entirety; that there was a "sudden jerk" and then the earthquake "roll like a river", but that only a few things fell off the shelves, he was simply attempting to be as specific as possible about the nature of the experience, rather than resiling from his written brief.

[79] The plaintiff was also critical of Mr Loh's vagueness as to whether his father had undertaken some repainting of the interior. However, I accept his explanation that he spent almost all his time at the front of the shop, running the dairy, and could not speak with any confidence about the work his father may have done in the back of the property.

[80] There is a further matter that is worthy of noting, particularly, when I am weighing up Mr Loh's evidence against that of Mr He. It was brought to my attention during the hearing that, on the Sunday afternoon before the hearing, Mr He communicated by email with Mr Loh saying:

> I do not mind you give evidence to the court, your right, but must honest.
>
> If you or your brother give the court wrong evidence, for the moment you might feel ok or no liability. But I must tell/remind you that EQC might put all the liability to you or ask you to pay all the court costs ($300-400k) once fail, talk to your lawyer John first!

[81] Mr He sent a similar email shortly afterwards to Mr Loh, again threatening that giving evidence "might cost you very big dollars". Two further emails were then sent to both Mr Loh and to his lawyer, with the first saying:

> [Y]our client give a not true evidences. It will be examined/questioned. You need to remind him/your client the result, it might cost him very very big dollars or future life.

[82] I accept that Mr He did not appreciate the serious ramifications of sending such emails. Indeed he sent the last two e-mails to both Mr Loh and Mr Loh's lawyer. Nevertheless, by sending them Mr He revealed that he was not just concerned about Mr Loh's evidence contradicting his, but was prepared to make threats to him which had no obvious factual foundation, which was that if Mr He lost his claim, Mr Loh would be liable for all Mr He's legal costs to date.

[83] This was consistent with the overriding impression I gained of Mr He which was that he appeared willing to do whatever was in his power to advance his claim, whether justified by the facts or not. I have already referred to his assertion that the floors were level before the earthquake. Another example was Mr He's willingness to adopt an apportionment of earthquake damage between the three earthquakes to

maximise his claim despite acknowledging that there was no damage of concern to him in September, except the damage identified by EQC. While he asserted this was on the advice of a former lawyer, it involved a factual assertion as to when damage accrued which was contrary to Mr He's assertion to that point about when damage was suffered, and to what he acknowledged in this hearing. I consider it was symptomatic of his willingness to say what seemed advantageous to his claim, whether he had reasonable grounds to do so or not.

[84] For these reasons, where Mr Loh's and Mr He's evidence conflict, I am satisfied, by some margin, that Mr Loh's evidence is to be preferred over Mr He's.

Photographic evidence

[85] Through the discovery process, a few photographs were provided which showed the exterior of the property in 2003 when Mr He and Ms Ye were still living there, and family members came to visit from China. Particularly instructive was a photo of the exterior of the north western corner of the property where the most significant settlement in the floor is found.

[86] Mr Sylvia, EQC's expert building witness, compared this photograph to photographs taken of the same corner of the property post-earthquake and observed that the comparison provided "strong evidence" to confirm that the slump in the corner of this house occurred prior to 2004.[20] He noted that the earlier photograph showed that the fascia boards to which the guttering was attached had slumped towards the northwest corner, as had the whole section of this wall. Furthermore, the guttering had been realigned before the photograph was taken to compensate for the drooping in that corner, to allow the water to still run. By comparing the degree of slope of the weatherboards in this corner from level in both photos, he concluded, and I accept, that the post-earthquake photograph does not show any relevant difference from the pre-earthquake photograph.

[87] Other photographic evidence confirming the state of the house prior to the earthquakes was obtained using Google Maps street view images. Again,

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[20] It was initially assumed the earlier photograph was taken in 2004, but Ms Ye confirmed in oral evidence that her family visited in 2002-2003.

comparisons of the 2008 and 2012 images of the western side of the property undertaken by Mr Sylvia show that there is a virtually identical slope in the roofline, and in the weatherboards on the exterior of the northwest room, in both images. That steep slope towards the northwest corner was contrasted with the relatively level weatherboards, roof and window line on the exterior of the adjoining kitchen.

[88] Finally, a Google Maps street view image of the south side of the property taken in 2008 shows a distinct and visible crack in the ring foundation in the southwest corner of the building with the broken section rotated outwards. This image is not materially different from the same image in the Google Map street view images from 2012.

[89] I am satisfied from this photographic evidence alone that Mr He was not truthful when he gave evidence that the house was level and well-maintained before the earthquakes, and that a key claim of earthquake damage, being the pronounced slope to the northwest corner, was pre-existing.

Physical evidence relating to the structure itself

[90] The defendants presented a wide range of evidence which supported the existence of historic settlement and showed how that settlement had been accommodated around various parts of the house. For example:

(a) the gutter on the northwest corner had been moved upwards to try and overcome the downward slope, but that still did not work and the guttering in that corner has now completely rusted out;

(b) a tanalised post had been inserted under the exterior wall, just to the side of the sliding door near the northwest corner, in order to halt the continued static settlement;

(c) despite the profound slumping in this area, the ranch slider still works and all the locks and sliders are aligned, supporting the defendants' position that no further slumping occurred in the earthquakes; and

(d) there were completely rotten piles in this area, which had largely rotted out well before the earthquakes, leaving the bearers resting directly on the ground.

[91] Mr Sylvia also catalogued a number of other adjustments made to the house, which predated the earthquakes, which support the settlement being historic, rather than caused by the earthquakes. For example:

(a) The timber sash window on the front bedroom beside the shop appeared to have been planed along its top edge to accommodate the static settlement of that wall, which sloped some 68 millimetres downwards to the north;

(b) The window frame had been painted over which suggested that further static settlement occurred following the planing of the window to the point where it was binding on its frame and was no longer able to open;

(c) The laundry door at the rear of the house had been modified to accommodate the historic settlement of the floor with the leading edge of the door having dropped approximately 10 millimetres relative to the door frame;

(d) The keeper to the door latch on the laundry door had been moved down a commensurate amount and yet the door could still latch properly after the earthquake, suggesting this drop in the door occurred at an earlier time;

(e) The wooden security door installed behind the sliding doors in the back storeroom must have been installed after the settlement had occurred, because the latch and the keeper are still aligned since the earthquakes, despite the steep slope in the floor beneath the door; and

(f) Where there are joins in the weatherboards which are covered by a vertical facing board, and on one side the weatherboards are drooping, there is no sign of any exposed unpainted sections of timber where the drooping weatherboards meet that vertical facing board, which again, suggests the droop occurred historically, and not as a consequence of the earthquakes.

[92] In my view, this evidence, considered holistically, points to the house having suffered significant dislevelment prior to the earthquakes, largely because of the inadequacy of the foundations, and that various adjustments had been made to the property over the years to respond to the developing dislevelment. By the time of the earthquakes there was significant differential settlement, particularly in the northwest corner. Furthermore, the piles and weatherboards were rotting and the exterior paint work was cracking and peeling, as recorded in the first EQC report. The assertion that the earthquakes caused further damage must be assessed against these findings as to the house's pre-existing condition.

What damage was suffered in the 4 September 2010 earthquake?

What damage was claimed?

[93] The plaintiff pleaded that the following damage was caused by the 4 September 2010 earthquake:

(a) cracking of internal linings;

(b) cracking of the exterior cladding;

(c) differential settlement of the foundations;

(d) racking of walls;

(e) damage to masonry chimneys; and

(f) damage to the roof.

[94] However, as already indicated, there was a marked divergence between the pleaded claim in respect of the 4 September earthquake, and the matters which were pursued in evidence at the hearing.

[95] Mr He's evidence-in-chief reiterated that there was "some cracking to the linings on the inside of the house and the weatherboard cladding [and] the floor also seemed to have settled unevenly". However, when he accompanied the EQC inspector through the house at the time of the October 2010 inspection, he signed an acknowledgment that there was no other damage, save for the noted damage to the chimneys and consequential damage to roofing iron. The report expressly recorded there was no damage to each room of the house, or to the exterior, but did note that the weatherboards were rotten and in poor condition.

[96] Confronted with this record, Mr He resiled from his evidence-in-chief, acknowledging he could not recall where any damage was, saying "I don't think I have a claim" as any damage was "very minor". Similarly, when taxed on the claim that there was damage to the weatherboard cladding he said "I cannot remember exactly where now, so many years but it certainly not big issue". He then conceded that he was not seeking anything for damage to floors, wall linings or exterior weatherboards in relation to the September earthquake.

What damage occurred?

[97] In light of the record of the September 2010 inspection[21] and Mr He's acknowledgement in evidence, I am satisfied the only damage to the property resulting from the September earthquake was that acknowledged by EQC.

Has EQC met its obligations in respect of the September damage?

[98] Given Mr He's concessions, the focus for the claim for the September damage was whether EQC was obliged to do anything more than it had done to address the acknowledged damage to the chimneys and the roof.

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[21] Discussed at [19] above.

[99] Mr He gave evidence that he had a functioning log burner in one fireplace, plus an open fireplace in one of the bedrooms. As a consequence of the September earthquake he says he lost the ability to use either of them as a heat source. He claims, therefore, that EQC's obligation is to pay the amount required to rebuild the damaged chimneys entirely, including new concrete pads at the base. He also says that the provision of a heat pump does not reduce EQC's obligations to pay for the rebuild of both chimneys. Furthermore, in respect of both fireplaces, he argues that EQC is also obliged to install a functioning log burner in each of them. He says this is required to restore both the functionality and the appearance of what was there before.[22]

[100] This aspect of the claim raises several issues. The first is what standard of repair is required in this case to meet EQC's obligation to repair the physical structure of the fireplaces. The next is whether EQC is now obliged to provide a different heat source, in the form of a log burner, to achieve the "equivalent functionality" of the damaged fireplaces. The last issue is whether EQC is still obliged to pay for the rebuild of the second chimney despite Mr He signing up to the Chimney Replacement Programme, which provided a heat pump in lieu of repair of one of the chimneys.

[101] EQC paid to remove the chimney stacks down to below the roofline. The balance of the chimney stacks are encased by wooden framing and wall linings, none of which show any signs of damage. Mr Gilmore gave evidence for the plaintiff that, in his experience, it is common to find that cracks occur internally in these types of brick chimney and he would always recommend replacing the chimney in its entirety. However, Mr Sylvia and Mr Searle, who both gave evidence for EQC, say there is no evidence to indicate there is any earthquake damage to the chimney stack below the roofline and photographs of the parts of the chimney stacks which are visible in the roof cavity show no evidence of earthquake damage. Furthermore, EQC has frequently effected repairs to such chimneys by obtaining the necessary consents to rebuild them above the roofline. For these reasons, they do not consider

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[22] Citing *Myall v Tower Insurance* [2017] NZHC 251 at [43] where it was held that the insurer's obligation was to reinstate the damaged chimneys to the equivalent "size, functionality relative quality and aesthetic appearance".

it necessary to remove the balance of the chimney stack. Dr Johnstone also confirmed that there was no sign of any earthquake damage in the photos taken of the remaining chimney stacks.

[102] While I accept that engineers may commonly recommend the complete removal of unreinforced chimney stacks, there is no evidence that this is generally necessary or, more importantly, that it is required in this particular case. I therefore conclude that the plaintiff has not demonstrated that the internal part of the chimney stacks are damaged, nor that their complete removal and rebuilding is required to be paid for by EQC.

[103] The next issue is whether there is a requirement to provide a functioning log burner as well as a rebuilt chimney stack. This must be considered in two different scenarios. The first is in respect of the main fireplace where Mr He claims there was a functioning log burner. The second is whether one is required to be installed in the other fireplace in order to reinstate the functionality of that fireplace as a heat source.

[104] There is conflicting evidence as to whether there was a functioning log burner in the main fireplace. When Ms Ye was asked about whether one of the fireplaces had a log burner in it, she responded that it was such a long time ago and she could not really remember what was there. Mr He said there was a functioning log burner in the lounge, although he acknowledged that as early as 2003 he used a gas heater for heating and could not remember if he used the fire after 2003.

[105] However, the defendants' evidence contradicts this. Mr Loh's evidence was that there were no working fireplaces inside the house and his father boarded over both the fireplaces long before the earthquakes.

[106] The suggestion that the log burner was not functional was supported by the fact that the plaintiff's exterior photo of the house in 2003 does not show a flu or cowling coming out of the chimney stack as one would expect to see if a functioning log burner was present. Furthermore, when the chimney stacks were pulled down, no flu was visible in any of the photographs of the materials removed from the stack. Despite Mr He's evidence that he had used the log burner even if it did not have a

flue, I am satisfied, on the balance of probabilities, that the log burner in the main fireplace was not functional at the time of the earthquakes.

[107] That leaves the issue of whether, despite there being no functioning log burner, the EQC Act requires not just repair of the existing physical structure of the damaged fireplace or chimney, but provision of an alternate heat source for burning wood to provide the same functionality.

[108] The first defendant's obligation under the EQC Act is to reinstate the damaged chimney "to a condition substantially the same but not better, or more extensive than its condition when new". That in my view is to do no more than rebuild the section of the chimney which was damaged so that it looks and functions as it did when new. That was discharged by the payment of $5,089. That obligation did not extend to providing an alternative heat source. That was not an aspect of the functionality of the part of the chimney which was damaged and which EQC was obliged to restore. The fact the fireplace itself could no longer be used as a winter heat source was a function of the Regional Council's rules. EQC was not obliged to remedy the effect of those rules when it undertook the repairs or reinstatement of damage. Because neither fireplace contained a functioning wood burner that was damaged as a consequence of the earthquakes, EQC was not obliged to install a log burner in either fireplace.

[109] The next issue is whether EQC is able to discharge its obligation to pay the cost of rebuilding one of the chimneys by provision of a heat pump under the Chimney Replacement Programme. Mr He's pleadings do not seek to set aside the agreement which EQC relies on to say it has discharged its obligation in respect of one chimney. It was only in opening submissions that the plaintiff asserted that:

(a) Mr He did not understand that he was contracting out of his statutory entitlement; and

(b) it would be contrary to public policy to allow the plaintiff's statutory entitlement to be avoided in this manner.

[110] EQC gave evidence that there was extensive publicity around the Chimney Replacement Programme which offered home owners the option of having an energy efficient heat source, such as a heat pump, installed in their home, rather than repairing or rebuilding a damaged chimney, as was their entitlement under the EQC Act. Furthermore, the Energy Efficiency and Conservation Authority (EECA) telephoned 20,000 EQC claimants to explain the option. Information packs were also provided to EQC claimants. This information made it clear that the option of having an energy efficient heater installed in lieu of repair or rebuilding a damaged chimney was voluntary, and that home owners were still entitled to have their chimneys fixed if they did not wish to participate in this scheme.

[111] While Mr He was vague on how he found out about the programme and whether he contacted EQC, or its staff contacted him, he nevertheless had a heat pump installed and signed a document which stated that, in accepting the heat pump, he was giving up his right to have the chimney reinstated. Mr He acknowledged that he signed that document and that he was usually a careful businessman. However, he essentially said that if he had a "chance" to change his mind, then that was what he was seeking through the Courts.

[112] In closing submissions, the plaintiff raised further unpleaded challenges to the agreement including that it was procured on the basis of misrepresentation and it constituted an unconscionable bargain. Given the failure to plead these matters I would normally be reluctant to consider these claims. However, I consider it is important to bring finality to the claim and I am satisfied on the evidence before me that none of the challenges to the agreement relied on by EQC were established on the evidence.

[113] The document relied on by EQC was headed "Winter Heat Programme: Installation Sign-off Advice". At the bottom Mr He signed his name by the statement that "the heat pump installed in the property is accepted in place of the chimney being rebuilt". He says that the installer asked him to sign to "give you free one" and that it was not explained to him that it meant it also compromised his statutory entitlement to have the second chimney rebuilt.

[114] Mr Cowey submitted that in those circumstances, by analogy with the decision in *Curtis v Chemical Cleaning and Dyeing Co Ltd*, the plaintiff should not be bound by the clause purporting to waive his statutory entitlement.[23] In *Curtis*, the document in question was headed "receipt", but in fact contained a clause excluding the company from liability for any damage, however caused. Because the shop assistant had innocently misrepresented the effect of the document to the customer who signed it, the defendants were subsequently prevented from relying on the exemption because of that misrepresentation.

[115] However, *Curtis* is quite different from the present case. First, it concerned an exclusion clause, and there was a clear finding that the scope of the exclusion clause had been misrepresented to the client. There is no such evidence here. At best the installer did not draw Mr He's attention to the wording he signed. I do not consider the installer's request to "sign to get a free one" went so far as to misrepresent the effect of the statement.

[116] Furthermore, I am satisfied that the extensive publicity regarding the scheme made it clear that the heat pump was being offered as an alternative to the statutory entitlement to have the chimney rebuilt. Mr Sylvia produced an EQC record which pre-dated the installation of the heat pump and showed that Mr He had contacted EQC saying he had "a log burner that is over the age of 10 and he wants it to be replaced with a heat pump". This suggests that Mr He had some prior information about the scheme which is why he contacted EQC to inform them of his election of the heat source to be installed.

[117] In any event, the relevant provision in the document is quite different from an exclusion clause buried in the fine print of a document. The acknowledgement that the installation is in lieu of the chimney being rebuilt is the only complete sentence on the form and the claimant has to insert his name and claim number within the sentence and then sign alongside the words confirming the waiver. It is almost inconceivable that an astute businessman like Mr He was not aware that he was receiving the heat pump on condition that he relinquish his right to have the chimney rebuilt and I find, on the balance of probabilities, that he did.

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23 *Curtis v Chemical Cleaning and Dyeing Co Ltd* [1951] 1 All ER 631.

[118] There is also no evidence to support an allegation that the agreement constitutes an unconscionable bargain. I am satisfied that EECA provided ample publicity about the terms of the Chimney Replacement Programme, that Mr He understood the terms of the agreement, and there was no inequality of bargaining power. Indeed, Mr He struck me as being someone who was well able to protect his own interests in these matters.

[119] Finally, the plaintiff suggested that the Court should be reluctant to relieve EQC of its statutory obligation to replace one of the chimneys through such an agreement. While acknowledging that clauses contracting out of statutory entitlement are not "inherently undesirable, particularly where they are agreed to by commercial parties where there is no suggestion of disparity in bargaining strength", by implication, the plaintiff suggested this was in a different case.[24] I do not agree. Where, as here, the legislation does not expressly prevent contracting out, the question is whether, as a matter of statutory interpretation, the policy of the Act allows it.[25] Although the arrangement between EQC and the insured is not contractual, it has nevertheless been held to be "an arrangement of insurance".[26] In my view, there is no public policy reason to differentiate between the rights of the parties to a contractual insurance policy to agree to an alternative resolution in respect of damage caused by natural disaster and the rights of the insured and the insurer to do the same under this statutory scheme of insurance.

[120] In my view, the sign-off advice, which required the EQC claimant to confirm that the heat pump was installed in place of the chimney being rebuilt by EQC, is not objectionable. It provided something of more utility to the claimant, at not much less cost to EQC than the chimney repair. There was ample information provided about the choice offered and there is no reason to override it on public policy grounds. Consequently, I am satisfied that the plaintiff has waived his right to have one chimney rebuilt by agreeing to the Chimney Replacement Programme, and he cannot now resile from that agreement.

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24 *Cash Handling Systems Ltd v Augusta Terrace Developments Ltd* [1996] 3 NZConvC 192,398.
25 Bennion (ed) *Bennion on Statutory Interpretation* (5th ed, Lexis Nexis, London, 2008) at 60-62.
26 *Earthquake Commission v Insurance Council of New Zealand Inc* [2014] NZHC 3138, [2015] 2 NZLR 381 at [171].

[121] In conclusion, I am satisfied that EQC has discharged its obligation in respect of the September damage through the combination of the works completed and paid for, the installation of a new heat pump, and the payment of $5,089 to reinstate the remaining chimney.

What damage was suffered in the 22 February 2011 earthquake?

[122] The plaintiff's expert evidence focused on the likely impact of the 22 February 2011 earthquake on the plaintiff's house.[27] Unlike the September event, which was assessed, at this site, as being a Serviceability Limit State (SLS) event, that is, about a one in 25 year earthquake event, the February earthquake was agreed to be more like an Ultimate Limit State (ULS) event, or a one in 500 year earthquake event. While the shaking was assessed to be slightly more intense that an ULS event, the duration of strong shaking was considerably less than a ULS event.

[123] In light of the comparative strength of the earthquakes, and Mr He's acknowledgement that he was not claiming for any damage to the dwelling other than that identified by EQC in respect of the September earthquake, his claim in relation to the February earthquake takes on more importance.

What damage was claimed?

[124] Mr He claims the following further damage occurred in the February earthquake:

(a) cracking of internal linings;

(b) cracking of the exterior cladding;

(c) differential settlement of the foundation, giving a vertical displacement of 154 millimetres;

(d) racking of the walls;

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[27] Although the plaintiff's expert evidence referred to damage caused by the earthquakes, Mr Gilmore said that his evidence, and his critique of Dr Johnstone's calculations, only related to the February earthquake.

(e) cracking of the perimeter foundation.

What is the expert evidence in relation to these claims?

[125] At this point it is necessary to briefly set out the competing positions of the plaintiff's and the defendants' expert witnesses on the likelihood the house suffered more significant earthquake damage than the defendants have accepted liability for.

[126] Both the plaintiff and the defendants called expert geotechnical and structural engineering evidence.

[127] In his evidence-in-chief, the plaintiff's geotechnical engineering witness, Mr Owen Thompson, simply confirmed his attached report which commenced by taking at face value the owner's account that "significant damage to the house site occurred during the February 2011 earthquake", being "the significant subsidence/tilting … in the northwest corner of the house and, to a lesser degree, on the southwest section of the house. He noted that the nature of the foundations to the rear of the house meant they were more prone to movement in a seismic event and concluded that "the wall lean in the northwest corner of the building was almost certainly accentuated during the strong ground shaking of the [Canterbury Earthquake Sequence], due to seismically induced foundation movements".

[128] He identified three possible causes of that seismic settlement, being:

(a) "shake down" of near surface dry loose sands;

(b) compression of weak foundation soils, particularly low strength silts, caused by seismic rocking of the house; and

(c) post-liquefaction reconsolidation settlement of soil layers at depths (below 3.4 metres BGL).

He did not elaborate on these theories any further.

[129] Ms Sleight's evidence-in-chief described the tests undertaken to assess the ground conditions on site and the conclusions which she drew from them, particularly as to whether the measured floor dislevelment resulted from static settlement or from seismic loading. She said that she and Mr Thompson agreed that there was:

(a) no evidence of any material liquefaction occurring under or in the immediate vicinity of the house or in the locality;

(b) no evidence of any lateral spreading having occurred under or in the vicinity of the house;

(c) no evidence of any land cracks under the foundations; and

(d) no evidence of any earthquake induced undulations in the ground.

[130] In her opinion, the land had poor bearing capacity when the soil moisture content was high, during winter and spring. Furthermore, because there was a permanently moist area in the northwest corner, likely due to a blocked downpipe on that side of the house, the soils beneath that part of the foundation were continually moist.

[131] In her view, the presently observable floor dislevelment was consistent with the level and pattern of settlement that she would expect to see, given these soils and what was known about the inadequate foundation system, rather than as a consequence of loads exerted during the earthquake sequence. That view was not materially affected during cross-examination. The majority of the house had ample bearing capacity except in the north-west corner where the piles had rotted out and the walls were sitting on bearers, and it had reached an equilibrium where, even in a ULS event, it would be unlikely to move any more than 10 millimetres.

[132] Mr Thompson prepared a comprehensive brief in reply. In it he acknowledged that the house would have experienced static, differential settlement across its floors before the Canterbury earthquakes, but considered that because the

floor was severely out of level in the northwest corner of the house, this did "not accord with a pre-existing pattern of static settlement". He also said he did not accept Ms Sleight's assumptions for the bearing capacity of the soil in winter at the northwest corner of the house, saying she had adopted assumptions which underestimated the actual soil strength in the ground, and the ground was not as soft as she claimed, thus making it less likely that the level of observed settlement was all pre-existing.

[133] While he acknowledged that it can be "difficult for experts to agree on the subject of what is pre-existing damage and what is earthquake induced damage", particularly in dilapidated structures, he said it was unlikely that the property could have suffered that much damage historically and then not suffer further damage in an earthquake. Instead, he considered that the northwest corner of the house had "overturned" as a consequence of seismic shaking and this was best explained by this part of the structure experiencing a "bearing capacity failure".

[134] In his opinion, and "ignoring the structural effects of rotting piles", the level of dislevelment in the northwest corner could not have been caused by static differential settlement of the piles under the loading advised by Dr Johnstone. Instead the main mechanism that induced settlement of the piles during seismic ground shaking would have been the compression of weak foundation soils due to the increased dynamic loading of the piles and other footing elements during the earthquake. In that regard, having discussed matters with Mr Gilmore, he considered that when the earthquake struck, this would have placed greater demands on the foundations, increasing bearing stressors, albeit transiently, and that loading would have been eccentrically applied due to the high inertial sheer forces of the earthquakes. That in turn would reduce the effective area of the footing (or foundations), and where the soils did not have enough reserve bearing capacity, they would have been overstressed to the point where they punched into the underlying silts.

[135] The differing conclusions of the two geotechnical engineers were then relied on by the parties' structural engineers as to the likelihood of there being bearing

capacity failure such as to materially exacerbate any existing differential settlement in the house.

[136] Mr Brett Gilmore, the plaintiff's structural engineering expert, provided virtually no evidence on the likely cause of the floor dislevelment in his evidence-in-chief, although he acknowledged that combination of the "hybrid foundations" found in this dwelling together with the "variable soil bearing capacities across the footprint of the building" was likely to result in differential settlement occurring. In terms of the contribution of the earthquakes to that settlement, he simply said:

> I do not consider the observed damage was all or mostly caused by pre-earthquake settlement because in my experience the type of damage observed (e.g. differential settlement of the house, chimney failure, cracks to the garage floors, misalignment of walls, movement gaps and cracks, interior/ceiling finishes etc.) is precisely what would be expected with the earthquake shaking the site suffered. Put another way, I would find it implausible to suggest that these structures could have been shaken as they were and not have suffered damage.

[137] That brief and high level conclusion was responded in Dr Johnstone's evidence for the defendants. He acknowledged that when he first saw the building he would have expected to agree with Mr Gilmore's comment that it was implausible that these structures could have been shaken as they were and not have suffered damage. However, as a consequence of his detailed inspection of the house and its structure he reached the view that there was no evidence to suggest that any significant damage occurred to the house apart from the relatively minor damage that EQC has already agreed to pay for.

[138] In order to determine whether the observable damage was pre-existing or caused by earthquake, he set out what he would expect to see if the current condition of the floors was attributable to the earthquakes. In particular, he would expect to see some observable land damage such as cracking, liquefication, lateral stretch or at least the "punching" of a pile into the ground, as a result of the load on that pile changing materially during the seismic event.

[139] The next piece of evidence he said he would look for was observable damage within the subfloor, for example to the foundation piles, perimeter footing, subfloor

timbers or packers. He would expect that if the lateral forces of the earthquake were sufficient to alter the floor levels above, then there should be some observable evidence of that movement under the floor such as a tilted or rotated pile, broken subfloor timber, or a packer being dislodged or falling out.

[140] He then would also expect to see some consequential damage to the superstructure above the floor, such as:

(a) damage in between skirting boards and wall linings, particularly above where the floor has moved;

(b) damage to the internal wall framing, with timber and connections racking or twisting;

(c) door frames separating from the wall linings behind them and/or the mitre joints of the door frame opening up;

(d) windows or other joinery above the area of the outer level floors moving out of level in a manner consistent with the underlying floor level;

(e) visible damage to the ceilings;

(f) visible deformation and broken paint work of external weatherboards, particularly at corners or joins;

(g) signs of movement of cover boards where weatherboards join between the older and newer portions of the building; and

(h) damage to joints between the internal lining sheets and joints between walls and ceilings and walls and skirting boards.

[141] In this case, there was no visible evidence of land damage. He also saw no evidence that the subfloor components moved during the earthquake. In particular:

(a) there was no indication that any of the quarry piles had moved, for example, by rotating, sinking or cracking, because of the earthquakes;

(b) there was no evidence that the timber packers that sat between the piles and the house, and which were not attached, had moved;

(c) there was no evidence that the bearers or joists had twisted or cracked and, indeed, at the back of the house, they were already sitting directly on the ground; and

(d) the concrete strip foundation on the roadside was cracked but, having inspected the cracks and compared them with photographic evidence prior to the earthquake, none of these cracks were likely to have been caused or materially changed by the earthquakes.

[142] In particular, one of the biggest cracks (identified as crack 14) in the southwest corner was evident in photographs taken prior to the earthquake. The asphalt of the adjacent footpath was laid prior to the earthquakes runs tightly along the perimeter footing of the house. Yet there was no evidence of separation between the perimeter footing and the asphalt, indicating there had been no movement of the perimeter foundation in the earthquakes.

[143] Overall, he concluded there was no evidence of damage to the subfloor or foundations such as he would have expected to have seen had the earthquakes caused the floors to become out of level.

[144] He reached the same conclusion when he looked at the superstructure of the house for "tell-tale signs of earthquake movement". There were no signs of cracking or movement between joins in the walls and ceilings, nor was there obvious damage to the paintwork, particularly at joins or corners, such as he would have expected to see if the house had moved as contended for by the plaintiff's experts.

[145] In any event, Dr Johnstone rejected Mr Thompson's assertion that there would have been "seismic rocking of the house", causing the floor dislevelment, for four reasons:

(a) the house was a low squat structure, so it was less prone to rocking than, say, a narrow multi storey building;

(b) the house was not a single rigid structural unit, but was constructed in stages, out of comparatively flexible materials, so it was less likely to rock in a seismic event;

(c) it was a cellular structure with a number of internal walls which meant it would absorb lateral forces, making it less likely to rock; and

(d) the rudimentary nature of the foundations, where the house was not attached to any of the foundation piles or the perimeter footing, meant there was a form of base isolation operating during the seismic events, making it less prone to the effects of lateral shaking of the ground.

[146] Mr Gilmore responded to the evidence that there was virtually no observable damage to the superstructure by saying that he had observed numerous residential developments where "significant damage has been observed to foundations (settlement with cracked and displaced foundations), but with few observable signs of damage to the superstructure, walls and ceilings" and so the "earthquake damage one would expect in theory is often not borne out of in practice".

[147] Although acknowledging it is "likely impossible to be accurate in assessing what may have been pre-existing settlement before the earthquakes", he maintained that the "earthquake component of the settlements would be in the range of 25 to 75 millimetres based on my consideration of the site soil conditions, the damage caused to the superstructure, and comparing this with numerous similar properties I have assessed".

[148] One other aspect of the structural engineering evidence should be noted. Considerable hearing time was occupied with critiquing Dr Johnstone's calculations of the expected loads being transmitted to the foundations of the property during a ULS event such as the February earthquake. The calculations involved a significant number of assumptions. While Dr Johnstone and Mr Gilmore were able to agree on some of these assumptions during the hearing, other key assumptions remained unresolved. These disputed assumptions included:

(a) the existing soil bearing capacity;

(b) the size and depth of foundations;

(c) the length of walls assumed as being available to resist seismic loads; and

(d) the degree to which walls meeting at a corner were connected and able to transfer the load around the corner.

[149] A further disputed issue was whether, and to what extent, it was appropriate to assume an increased bearing capacity of the soil during a transient event such as an earthquake. Mr Thompson accepted that the bearing capacity of the soil could be assumed to be 30 to 40 per greater, while Ms Sleight and Dr Johnstone said that the appropriate assumption was that it had 60 per cent greater bearing capacity, and no point of resolution was reached on this issue.

[150] It appeared to me that Mr Gilmore generally adopted more conservative assumptions than Dr Johnstone, as would be appropriate for a design exercise, rather than looking for what was likely to be the most realistic assumption given the Court was endeavouring to work out what actually had happened with this dwelling in the February earthquake. Indeed he accepted that if he wanted to forensically understand how the building was behaving he would need to do a lot more research.

[151] Depending on the assumptions adopted, the outcome ranged from the ground being able to cope with the seismic loads by a significant margin, to it not having

sufficient capacity to resist the seismic loads. For that reason, I did not find the calculations of any real assistance except to say that, in theory, it was possible for the seismic loads to exceed the bearing capacity of the soil, depending on a number of variables, including, critically, how dry the soil was at the time. However, I found Dr Johnstone's explanation the more plausible. In cross-examination, he said that the dwelling, with its hybrid foundation, had reached a position of equilibrium following static settlement. Thus, no matter whether his calculation of additional load during the earthquake, or Mr Gilmore's, was adopted, the combination of the assumed additional bearing capacity in the transient event (whether 30 per cent or 60 per cent), plus the fact that when the February earthquake occurred the ground was dry and so could be assumed to have 300 per cent greater strength, meant there was ample bearing capacity available. He therefore struggled to see why the foundations would have settled at all in the February earthquake.

[152] In the end, I accept that the defendants' approach has more utility in this case. That is, to look for any observable damage over and above such damage as can be shown to have occurred historically, and then to use calculations as a "sanity check" to confirm that the relative lack of observed damage was explicable.

[153] In contrast, the plaintiff's case started from accepting Mr He's position that the floor levels had noticeably changed in the earthquake, that it was theoretically possible that the seismic loads exceeded the soil's bearing capacity, and therefore, despite a lack of observable damage consistent with that, some of the settlement must have been earthquake induced.

[154] Both Mr Gilmore and Dr Johnstone made reference to the physical evidence of damage (or lack of it) to the superstructure of the house to support their competing contentions. Dr Johnstone's view was that if, indeed, the floors had dropped 25-75 millimetres as Mr Gilmore suggested, there would be corresponding evidence of that movement in other parts of the building and we do not see that. In that regard, I heard evidence from Mr Brendon Sylvia, a trained carpenter and experienced builder, who is currently employed as an estimator for EQC, and from Mr Bundy, a chartered building surveyor, about the observable damage in the dwelling and its likely causes.

[155] Mr Cowey challenged Mr Sylvia's independence and expertise prior to him giving evidence. However, I directed that his evidence would be provisionally admitted, particularly given its largely factual content, and any challenge to his ability to provide opinions could be the subject of submission. In the end, the matter was taken no further, nor would I have considered it appropriate to exclude any of his evidence. Mr Sylvia's evidence was primarily tendered for the purpose of providing helpful reference documents, including a subfloor plan, a crack map which identified the location and size of the cracks in the concrete perimeter footing, a floor level plan and a weatherboard plan showing the relative variation in heights of the weatherboards around the house.

[156] The balance of his evidence was largely descriptive of the damage observed. However, he also gave explanations regarding the significance of some of these observations in terms of whether it was likely to have been earthquake damage. For example, he explained that the fact the latch and keeper on the wooden door in the northwest corner aligned, despite the steep slope in the floor beneath the door, suggested that there has been no recent material movement of the floor beneath this door. I consider the opinions he gave were well within his expertise as a former carpenter and builder. I was also impressed with the careful and detailed nature of his evidence, including the answers he gave in cross-examination.

[157] Similarly, Mr Bundy's evidence was clear and logical and made similar observations about there being physical evidence to support the building's deficiencies being pre-existing not earthquake induced. For example, the fact shelving installed in the hallway was level when the hall itself sloped, was consistent with the slope being pre-existing and the shelf installed after the slope had occurred.

[158] Finally, I note that the evidence of Mr Loh supported the defendants' experts' evidence rather than the plaintiff's. His evidence that only a small amount of stock fell in the February earthquake, resulting in a similar claim to the September earthquake of about $100, was more consistent with shaking that caused minor damage as opposed to shaking that rocked and "overturned" the building.

Were the wall linings damaged?

[159] EQC's assessments on 27 October 2011 and 20 April 2012 identified cosmetic damage to the ceiling in the kitchen and cosmetic damage to the ceiling and walls in one of the three bedrooms. The bedroom damage constituted "minor cosmetic paint cracking within the butt joints of the pinex (soft board) wall and ceiling linings". However, Mr Sylvia said he could see no earthquake damage to the rear kitchen ceiling and disagreed that EQC should have assessed this as earthquake damage. Nevertheless, EQC did not resile from the payment it had made. The defendants disputed that any other internal damage was earthquake-related.

[160] In respect of the claim for damaged wall linings, the plaintiff noted that some of the internal wall linings had been painted over after the earthquake and this may have covered further damage. Furthermore, because of the volume of goods which are stored in the house, there has never been an exhaustive inspection of the wall linings by any party. However, an absence of discovered damage cannot support a claim for damage to the interior. The onus was on the plaintiff to establish that the interior wall linings were damaged. The only evidence of internal damage was Mr Gilmore's identification of hairline cracks or movement gaps in 12 photographs of the interior. However, a number of these were in the bedrooms where EQC had agreed to pay for minor internal damage. The balance were in the hall and a toilet area and were comprehensively responded to by Mr Syliva who explained the damage as more likely to have other causes, such as being the result of water damage in one area or as the result of hammering in adjacent cable stays.

[161] However, the primary reason I accept the identified additional damage was not earthquake related, was the overall lack of disturbance to areas where earthquake damage could be expected, such as at junctions between the wall and ceilings or around doorframes. As Mr Bundy observed, where cracks and minor areas of incomplete filling and painting were observed, these were localised and did not display any patterns of wider disturbance or permanent displacement such as would be expected if there had been recent movement or settlement of the building.

[162] In summary, I am satisfied by some margin that EQC has met its obligation to pay for the repair of any internal damage that is likely to be earthquake related and it has not been shown to have any further obligation in this regard.

Was there damage to the exterior weatherboards?

[163] In respect of the claim for damage to external weatherboards, the plaintiff relies on Mr Gilmore's evidence that he closely inspected the weatherboards and found "numerous examples of weatherboard damage consistent with his observations of damaged weatherboards in similar earthquake damaged houses". This primarily comprised cracked paint at butt joints, and horizontal cracks in the joints between bevelled weatherboard edges. Mr Gilmore also suggested that repainting of parts of the exterior walls could have hidden evidence of earthquake damage. However, I accept that the areas which had been repainted to hide graffiti were relatively isolated and were in the centre of walls that faced the road. The vast majority of the exterior weatherboard cladding had obviously not been repainted for some time.

[164] Mr Sylvia responded to each of the photographs identified by Mr Gilmore as being evidence of earthquake cracking and explained that such cracking was consistent with thermal movement cracking, water damage or a construction defect. Furthermore, many of the cracks were simply cracks that were reappearing because they occurred in paint which was already bridging a pre-existing gap.

[165] Mr Bundy, too, considered that the visible gaps were localised and appeared to be defects in paint work, rather than having been caused by earthquake shaking. This was reinforced by the fact that in other places where gaps in the boards were bridged by paint, there was no cracking or evidence of movement. Thus, while Mr Bundy did not rule out the possibility that one or more of the cracks identified by Mr Gilmore could be "consistent" with earthquake damage, overall he remained of the view that there were no signs of "sudden misalignment of cladding or other building features" as he would expect if it was earthquake damage.

[166] I accept that there was significant evidence to show movement had occurred in the walls prior to the earthquakes, including evidence that gaps which had opened up had been filled and painted in the past. The poorly maintained state of the

exterior meant paint was cracked and peeling on almost every wall except on those parts of the walls facing the street where graffiti had been painted out. In light of the evidence, I am satisfied that most, if not all, the evident cracking and gaps were the result of poor maintenance and the effects of heat and moisture. If, indeed, any of the cracks were caused by the earthquake, their effect was so insignificant when the general state of the exterior was considered, that they could not be considered to constitute damage for the purpose of a claim.

Did the earthquake damage walls and veranda posts through "racking"?

[167] The plaintiff claims that the eastern wall of the shop has "racked" towards the north by five millimetres per metre and the veranda posts on the stop front lean to the north by up to 39 millimetres across their height. In closing, Mr Cowey suggested that the "defendants' witnesses all either ignored this significant racking damage or maybe just failed to notice it". However, while the plaintiff's claim referred to "racking of walls", it did not refer to the issue of veranda posts, and that issue was not developed beyond a mere statement in reports attached to evidence that there was "racking and/or leaning" of the walls and timber posts, until it was raised in Mr Gilmore's evidence in reply. However, even then, he did no more than provide measurements of the lean and state "that this is most likely caused or partially caused by the earthquakes".

[168] The issue only took on any significance in cross-examination of the defendants' witnesses, which lead to the plaintiff asserting in closing submissions that "Dr Johnstone had no plausible structural explanation for how that damage could have occurred other than by earthquake". However, I consider this mischaracterises the answers given. In fact, Dr Johnstone said that he believed "it has been long term settlement of the more heavily loaded outside walls, compared with the inside walls and that it has gone down in the northeast corner". He also noted that the four veranda posts had different degrees of lean which suggested they "may not have been built properly".

[169] While he accepted he could not answer how static settlement caused the measured lean that was seen to veranda posts, he said that was because he did not

know all the factors relevant to it, including whether the front of the shop was built in two stages and how accurately it was built. However, he was able to say that he was sure the movement was more consistent with static settlement than earthquake action, as if all the movement had been caused in an earthquake, there would be other visible damage such as broken glass in the large shop front windows.

[170] In relation to the misalignment of walls, Mr Thompson's plan showed a range of leans on both internal and external walls. They were not of consistent amounts or in consistent directions. It was suggested in evidence the leaning was caused by deficiencies in the original building, static settlement, earthquake movement, or a combination of factors.

[171] The plaintiff's claim for the leaning veranda posts and the leaning eastern wall of the shop rests on the same theory that is relied on to explain the settlement in the northwest corner. I consider it must stand or fall on the same evidence. Given the evidence pointing to the other claimed earthquake dislevelment being pre-existing, the lack of visible damage in the superstructure of the house, the many indicia that the house was sloping and misaligned before the earthquakes, and the likelihood that there was adequate bearing capacity to resist the additional loads in the earthquake compared to static gravity load conditions, I consider it is less likely than not that the leaning in the walls and posts was caused by "overturning" in the February earthquake, as claimed by the plaintiff.

Was there damage to the perimeter foundation?

[172] There is a concrete perimeter foundation on the south and east side of the original dwelling and facing the two street frontages. Fourteen cracks were identified in that foundation which ran from top to bottom of the foundation. As already alluded to, there are images of some of the cracks which pre-date the earthquakes. Furthermore, some of the cracks can be seen to have paint within them, that pre-dates the earthquakes, again confirming they existed before the earthquakes. What was at issue then was whether the earthquake had caused or exacerbated any foundation cracking to an extent that constituted damage which the defendants were obligated to repair or replace.

[173] In his original report, Mr Gilmore categorised the cracking of this unreinforced perimeter concrete footing as earthquake damage, although he acknowledged it was possible that "a portion of the cracks could have existed before the earthquakes" but that pre-existing cracks may have "widened and/or lengthened due to the earthquakes". In his reply evidence, he acknowledged that, having reviewed the photograph evidence, several cracks were present before the earthquakes. However, it remained his position that some of the cracks were either caused or exacerbated by the earthquakes.

[174] While Mr Gilmore accepts that some cracks have paint in them, he says there is a separation between the paint in a number of the cracks which confirms that they widened in the earthquakes. In response to Dr Johnstone's suggestion that the cracks were caused by a combination of shrinkage and settlement, he considers that "due to overturning actions of the walls", there would have been "some increase in damage".

[175] With respect to crack 14, which is a large crack towards the western end of the south wall where the section of foundation beyond it has rotated out of plane, he maintains that this is "most likely caused by earthquakes rather than the effects of any static settlement". His response to Dr Johnstone's comment that there is no corresponding damage to the adjoining asphalt on the footpath, is that the paving "can act as the pivot point of the rotation or close to it". He accepts that unlike other houses with unreinforced footings where the cracks were "clearly caused by the earthquakes because they were clean cracks free of any debris and the concrete unpainted", it is more difficult to assess these cracks because of the passage of time. However, he dismisses the possibility that they were all caused by concrete shrinkage because, in his experience, "the close regularity of such cracks rarely occurs in these types of foundation footings". He therefore expresses the opinion that it is significantly more likely than not that the cracks were caused, or at least exacerbated, by the earthquakes.

[176] Dr Johnstone, on the other hand, was of the view that nearly all the cracks were caused by concrete shrinkage and none of them appeared to have materially changed due to the earthquakes. He explained that all concrete shrinks with time, usually over the first three years of its life and this concrete could expect to have one

millimetre of shrinkage per one metre of concrete length. Thus, along the front elevation of the shop, which is approximately seven metres long, he would expect shrinkage cracks to total approximately seven millimetres. In total, the six cracks along this wall total approximately 5.5 millimetres. He considered this gap, and the fairly even spacing of the cracks, was consistent with shrinkage cracking.

[177] In terms of crack 3 on this frontage, he noted that plaster had cracked off the surface of the strip footing near the crack. He accepted that this plaster may have been dislodged, in part, by the earthquake. However, there was another explanation for the plaster damage around crack 3. Mr Loh said that he took a photo of the foundation crack shortly before a quantity surveyor's inspection was due to take place on 1 November. He said that Mr He arrived about two hours before the quantity surveyor came and Mr Loh saw him going around the property. The next day he noted that some of the material from within the crack had been dug out and he took a further photo of that. When it was put to Mr He that he deliberately pulled out material to aggravate the crack, he initially said: "no way. I have been there to inspect. I don't need to because already in the report, any size to me no difference. You insult me". When pressed on the matter, he acknowledged that he had gone around inspecting the cracks, but that it was "no different actually. No different … whether the size, whether a few more, that's no lie". However, his final position was "I cannot remember. I don't think I have. But I do check there".

[178] In my view, it is irrefutable that the cracks which could be identified in pre-earthquake photos, and the cracks which had old paint within them, were pre-existing.

[179] Mr Gilmore accepted that most, if not all, of the cracks existed before the earthquake, and that the cause of the cracks could have been shrinkage or, in the case of crack 14, by the existing timber piles rotting out before the earthquakes causing the western wall to drop onto the perimeter foundation and crack it. Indeed, in cross-examination Mr Gilmore expressly disclaimed giving any view on whether any of the cracks were caused by the earthquakes. The only live issue therefore was whether any of the cracks were exacerbated by the earthquakes to the point where it could be said there was some material damage as a result of the earthquake.

[180] It was clear that the perimeter foundation was severely compromised by the extent of the cracks both visually and functionally. That was accepted by the plaintiff's witnesses. For example, Mr Gilmore accepted that structurally the foundation is no different after the earthquakes if a crack such as crack 14 was pre-existing and that he did not expect other people to pick up any aesthetic difference between the pre-earthquake photo of that crack and the post-earthquake photo. Similarly he accepted crack 11 was pre-existing and structurally was no different before and after the earthquakes.

[181] Mr Gilmore gave evidence that if a shrinkage crack widened to the point where the aggregate was no longer interlocking, then at that point the foundation would lose its ability to transfer load along the footing. By implication, if the earthquake caused the loss of aggregate interlock, that would affect the performance of the foundation and would constitute damage.

[182] However, Dr Johnstone's view was there was no evidence to show that happened at all, although it was possible for there to have been some movement within the existing cracks during the earthquake shaking. For example, Dr Johnstone did acknowledge that, while crack 3 was caused by concrete shrinkage, there could have been some earthquake movement there. The fact that there was a fracture through the paint within existing crack 10 could be explained by earthquake movement. Furthermore, although crack 13 "could be earthquake damage", it was an unusual shape which was neither readily explained by shrinkage or by earthquake movement, given there was paint still covering the top part of the right hand side of the crack.

[183] I have seen close up photographs of all the cracks which show features such as sharp or rounded edges and the presence or absence of paint within the cracks. Having compared these with the available photographs of the pre-existing state of the foundation, I draw the following conclusions. I accept that it is most likely that all the cracks were present prior to the earthquake, primarily as a consequence of concrete shrinkage which emerged soon after the house was built. In respect of the cracks on the southern perimeter foundation, the plaintiff pointed out that there was 15.5 millimetres of crack width but only six metres of perimeter foundation, so the

cracks were not accounted for simply by shrinkage. However, as Dr Johnstone explained, the measured crack width included cracks where the crack tapered up to a wide point at the top and where one of the segments had tipped or rotated out. This would exacerbate the measured width of the cracks. Those with the widest gap, such as crack 14, were readily explained by the fact the foundation was completely rotted underneath. If the width of these cracks which were wide at the top but tapered to nothing at the bottom were ignored, then the degree of cracking was consistent with the cracking all being initiated by shrinkage though exacerbated by the settlement caused by rotting foundations.

[184] Again, the plaintiff's case rested on the theory that, while the cracks may well have been pre-existing as a result of concrete shrinkage or settlement caused by rotting piles, some further damage was likely to have been caused through the building overturning under the force of seismic loads. I also accept that they underwent some movement and this may have been sufficient to crack open the paint which covered cracks 3, 4-6, 8, 9 and 13, and, in respect of crack 3, to also knock off a small amount of the surrounding plaster, although I accept that this crack was then hollowed out a little further by Mr He in November 2013.

[185] The only remaining issue is whether this extremely minor damage to the perimeter foundation, which was already fundamentally compromised both structurally and aesthetically by the 14 existing cracks, should be considered further damage which needs to be remedied.

[186] There is no evidence to suggest that the earthquake has caused any structural change to any of these cracks as there was no crack identified which would have had "aggregate interlock" before, but not after, the earthquake. The widest cracks along the southern wall were pre-existing and were caused by settlement. I do not accept that crack 14, in particular, was exacerbated by the earthquake. If the section that is rotated and out of plane had been caused by earthquake damage, I agree that there would have been some corresponding evidence of movement in the hot mix abutting it. Furthermore, I consider the photographic evidence supports this rotation as being pre-existing, most likely as a result of the rotting out of piles in this corner.

[187] The next issue is whether any of these cracks have changed aesthetically, such as would warrant rectification. I have accepted that some of the cracks show some sign of the paint reopening in the vicinity of the crack. However, I do not consider this necessarily constitutes damage. Looking at all the photographs of the perimeter foundation, paint is chipped, flaked and lifting in a range of places and it is unclear whether the loss of paint is more likely to have been caused by earthquakes, or simply by lifting and blistering caused by poor preparation and ingress of moisture which has caused the paint to lift and break off, particularly where there is a gap behind it such as a crack. In all the circumstances, I am not satisfied that any chipping or lifting of paint on or near the crack constitutes damage when the same chipping and lifting of paint is visible in other areas of the perimeter foundation.

[188] However, where it has caused plaster to crack away at crack 3, I consider this is earthquake damage as, at this point, I consider there is a sufficient aesthetic change to warrant a repair being required. Even though I have accepted that Mr He has dislodged some material from this crack, some plaster had fallen away from it before he did this and I consider it is most likely to have occurred as a consequence of earthquake shaking.

[189] That leaves the question of what EQC is required to do to remediate the identified foundation damage at crack 3. In this regard, I am content to accept Dr Johnstone's evidence which accepts that the plaster may have cracked off the surface in part, as a result of the earthquake and, if so, the plaster should be patch repaired, and the strip footing repainted.

[190] I therefore find that the first defendant is liable to repair the plaster at crack 3 and to repaint the length of the strip foundation on this front section of the house.

[191] In respect of crack 13, which is the only other crack acknowledged as possibly exacerbated in the earthquake, I find that the plaintiff has not proved this constitutes earthquake damage on the balance of probabilities. I consider the evidence supports this crack being pre-existing, because there is connected paint over the right hand side of it. For the same reason as I have rejected the other paint cracking as earthquake damage, I reject this as damage.

What damage was suffered in the 13 June 2011 earthquake?

What damage is claimed?

[192] The plaintiff's pleadings claim that as a consequence of the 13 June 2011 earthquake there was:

(a) cracking to the floor, wall and ceiling lines of the garages; and

(b) cracking to the paths, driveways and the concrete hardstand in front of the garages.

[193] Mr He alleges in his evidence that he visited the property after the June 2011 earthquake and "saw that a waterpipe had broken in the area behind the house". That was when he was told by Mr Newell, his tenant, that there was damage to the garages. He says he then inspected the garages and confirmed this damage.

[194] The documentary evidence, however, does not support Mr He's version of events. The broken waterpipe was reported to the Council in early March 2011. Mr He asked Mr Loh to arrange for the repair of the broken pipe. Mr Loh confirmed there was only one broken pipe which he arranged to have repaired and he passed the invoice for that repair on to Mr He for payment. The invoice was dated 22 March 2011 and it was date stamped as being received by EQC on 31 March 2011. When confronted with the fact the invoice for the repair was dated 22 March 2011, Mr He insisted that the invoice had been incorrectly dated and should have been dated 22 June 2011. This ignored the fact that the invoice was marked as received by EQC at the end of March.

[195] Mr He's insistence that the water pipe broke in the June earthquake was relied on as the trigger to inspect the garages. However, no damage to the garages was recorded in the report Mr He commissioned by Ling Consultants in July 2011. If, as Mr He says, he had his attention drawn to there being damage to the garages in June, then I would have expected this to be addressed in Mr He's consultant's report. Similarly, OPML's loss adjusters were not made aware of any damage as, in their 4 January 2012 report, there was no reference to it. OPML understandably suggests

that the fact there was no report of damage to the garage or hardstand areas to Mr He's own engineer or to his insurers at the time, raises questions about whether the claimed damage to the garages was indeed earthquake related.

[196] In my view, Mr He endeavoured to link the damage claimed to the garages and hardstand area to the June earthquake, in order to increase his potential recovery given the $300,000 cap per event under his insurance. I am satisfied that the waterpipe broke more than three months before the June earthquake so if, indeed, that event was the trigger for discovery of garage damage, it would have been damage sustained in the February earthquake, although, of course, that is not what is claimed.

Was there damage to the concrete hardstand or other hard-landscaping?

[197] In respect of the claim for damage to the concrete hardstand (whether related to the June earthquake or to earlier events), there was no evidence about this damage in the plaintiff's briefs of evidence. While there is a significant crack in the hardstand in front of the southern garage, Mr Sylvia's evidence was that this crack significantly pre-dated the first earthquake. Having seen the cracking both on the site visit and in photographs, I accept this observation is correct.

[198] In the absence of any evidence to suggest there was damage to the hardstand or, as pleaded, to paths or driveways, this aspect of the claim must inevitably fail.

Was there damage to the garages?

[199] That leaves the alleged damage to the garages. Dealing first with the north garage, Mr He says that when he inspected the garage after the June earthquake, he saw significant cracks in the walls, ceiling linings and concrete floors. However, neither Dr Ling, nor Mr Rakovich, who had been engaged by Mr He to inspect the property after the earthquakes, had concluded there was any damage to the north garage.

[200] Mr Gilmore's first report described the damage to the north garage as:

(a) cracks in the concrete floor slab; and

(b) vertical misalignment "due to racking, as indicated by [the plaintiff's building surveyors]".

He had not, however, inspected the inside of the north garage and he accepted in cross-examination that he was not aware that Mr He was claiming that the north garage needed rebuilding and that he would prefer to confine his evidence to the south garage as that is the one he inspected.

[201] The defendants' experts, who had inspected the north garage, gave evidence that the cracking in the floor was historical. In particular, Dr Johnstone observed "old paint in the crack and its tributaries" and he saw no evidence that the crack had been exacerbated by the earthquakes. Likewise, Mr Bundy considered that the crack had been present for some time as the crack had rounded edges which were painted. Furthermore, he noted that such cracking was very common in unreinforced concrete floors. While both Mr Bundy and Mr Sylvia accepted they could not categorically exclude the possible slight widening of the cracks as a consequence of the earthquakes, that was not, in my view, confirmation that there had been relevant natural disaster damage.

[202] I consider the pleaded claim in respect of damage to the north garage must fail. The evidence does not satisfy me that damage occurred in the June earthquake as pleaded. More importantly, the plaintiff does not give evidence of the interior lining damage claimed and the evidence before the Court on the alleged cracking in the floor satisfies me it is more likely than not, that this is historical damage.

[203] In respect of the south garage, the plaintiff's pleaded claim was again for "cracking to the floor, wall and ceiling linings". Mr Gilmore confirmed that there were also hairline cracks in the interior wall finishes to the office of the south garage. Although not the subject of a pleaded claim, Mr Gilmore said that the survey of the floor level suggested there had been some differential settlement of the floor slab and that the walls of that garage were vertically misaligned "beyond acceptable construction tolerances due to racking". He noted that it was "possible, given the

age and condition of the garages that a portion of the differential settlements and wall misalignment existed before the earthquakes". However, he considered that earthquakes had caused or exacerbated the pre-existing alignment/level issues. Mr Gilmore did not explain why he reached this conclusion other than saying that he relied on his "experience when assessing similar building structures".

[204] In respect of the cracking in the floor of this garage, I am satisfied that the primary crack was pre-existing and was not caused by earthquake. Again, this is based on the photographic evidence which shows well developed cracking with rounded edges and paint within it. While it is acknowledged, as a possibility, that it extended in the earthquake, there was simply insufficient evidence for me to draw the conclusion that it had in fact extended and, if it had, that such an extension constituted damage for the purpose of an earthquake claim.

[205] There is no pleaded claim that the walls were misaligned from racking. However, again this is a matter which I address simply to bring finality to the issue. The inspection report undertaken for the plaintiff by Strutek Engineering Limited was incorporated in the bundle of documents and referred to by the witnesses. It confirmed that the south garage walls were out of vertical and the internal wall of the south garage was bowed.

[206] The plaintiff relied on Mr Gilmore's evidence to support this claim. It did no more than list the observed deficiencies in the building and conclude it was likely the earthquakes had at least exacerbated any existing problems. However, Mr Gilmore gave no real indication as to why he preferred the explanation that the earthquake caused the recorded wall misalignment, rather than the other factors identified in the defendants' evidence, which included wind loading on a lightly braced building, poor construction methods, and settlement due to leaking downpipes and decay in the building framing. The onus was on the plaintiff to do this and I do not consider that onus has been discharged.

[207] I consider it more likely than not that the south garage was out of plumb before the earthquakes. I rely in particular on the photographic evidence showing that the newer cladding installed on the rear of this garage has been installed in a

staggered way to accommodate the existing slope. I also accept that the evident decay in the framing of the garage, and the obvious defects in construction (such as misaligned beams), could well be contributing factors.

[208] There was no pleaded claim of damage to the garage floor slab. However, the fact the floor slab sloped towards the front was stated in Mr Gilmore's evidence as being more likely explained by earthquake induced movement. However, there was no supporting geotechnical evidence to explain why the floor slab could have tilted in the earthquake. Mr Gilmore ventured an opinion that "the shake down effect of the upper soil" had contributed to the settlement. However, both the geotechnical experts had dismissed this as a possible contributing factor to differential settlement on the property. When asked whether he accepted that a sloping floor did not by itself indicate earthquake damage, his view was that it was "more likely than not that it did". Indeed the same assumption underpinned his view of what caused out of alignment walls. When asked whether if he saw a leaning wall, his assumption would be that it is earthquake damage, his response was "often, yes correct".

[209] Again, I am not satisfied that the plaintiff has proved that the slope on the floor was earthquake damage. Given the ad hoc construction of the garages, it was quite plausible that either the floor was either not constructed perfectly level, or else the slight slope towards the garage door was deliberate and designed to ensure drainage of the floor. Without any robust theory to support why the slope on the floor was earthquake induced, other than the possibility that a theory which had been discarded by the geotechnical experts was the cause, I am left unsatisfied that the floor slope was earthquake damage.

[210] That leaves the hairline cracking in the walls of this garage, which even the defendants' experts agreed looked like earthquake damage. However, how this damage sat within the pleaded claims was less clear to me. OMPL had accepted responsibility for the cost incurred by the plaintiff in re-plastering and repainting the office in this garage in March 2012, being a total of $2,059.

[211] As Mr He explained, after that work had been done, further cracking occurred. Mr He could not say why that occurred, whether it was from subsequent earthquake movement or, whether it was because the "structure already no good" and "slightly move". Given the room was repaired after the three earthquakes and then there has been further cracking, I am unable to conclude that it falls within this claim for earthquake damage.

[212] For all these reasons, the plaintiff's claim for further earthquake damage in relation to both garages, and the hardstand area, fails.

Outcome on the plaintiff's claims for earthquake damage

[213] I have concluded that the plaintiff's claim for judgment against the first and second defendants for failing to settle his earthquake claims, fails in all respects, except for a minor claim for repairs to plaster damage on a section of the perimeter foundation.

[214] As that was not an outcome addressed in the quantity surveying evidence, I am unable to quantify this claim, but expect it will fall well within the statutory cap of $100,000 under the EQC cap and therefore will only require the first defendant to respond. In respect of the second defendant, its only liability to the plaintiff is for the costs of interior repairs to the south garage, which it has already agreed to pay. If the parties can not resolve issues of quantum, I reserve leave to return to the Court for a determination on this issue.

Interest

[215] The plaintiff sought interest on his claim from the date EQC acknowledged the plaintiff had suffered damage in each earthquake. However, the primary reason for claiming interest was in the expectation that the claim would exceed the sum insured by some margin, and the delay in payment would have eroded the purchasing power of that sum.

[216] However, in the circumstances as I have found them, there is no need to compensate the plaintiff for the delay in payment as the cost of the plaster and paint repairs to the foundation will be calculated as at the present time.

Costs

[217] The parties indicated that they wished to be heard on costs. I am satisfied that, in substance, the defendants are the successful parties and costs should follow the event. In addition, I acknowledge there may be arguments for increased costs given the history of this claim as outlined earlier in this judgment (although I express no view on whether that, in fact, is the case).

[218] In all the circumstances, I direct that if the parties cannot agree on costs then submissions on costs are to be filed and served as follows:

(a) the defendants' submissions within 20 working days of the date of this judgment;

(b) the plaintiff's submissions within 30 working days of the date of this judgment; and

(c) any submissions in reply within 35 working days of the date of this judgment.

[219] Submissions are to be no more than 15 pages in length, with reply submissions no more than five pages in length.

[220] Unless the parties indicate they wish to be heard on costs, or I decide it would be helpful, costs will be determined on the papers.

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